

TECHNOLOGY PIONEER

THE MAGAZINE OF MODERN MATERIAL HANDLING AND PIONEER METHODS
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prize-winning papers total \$1500. Rules are simple. Write for your entry blank.



Assured Dependability

FOR HANDLING HEAVY LOAD

THEIR'S good reason why experienced users give the call to Hevi-Lifts for their toughest handling jobs. It's the hoist that leads the field in heavy-duty design — that handles full capacity loads dependably — safely — year after year. And without the petty annoyances and breakdowns that cause delays.

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P&H Hevi-Lifts are available with 5-step variable speed push-button control, offering a change of pace for all motions in lifting, traveling and lowering. Call in a P&H materials handling engineer, or write for literature.

These ADDED VALUES are Standard Equipment on P&H Hevi-Lifts

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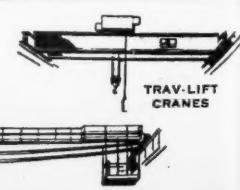
EXCAVATORS • ELECTRIC CRANES • ARC WELDERS



ZIP-LIFT
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HEVI-LIFT
HOISTS

HEAVY DUTY CRANE



TRAV-LIFT
CRANES

How Stewart-Warner Corp.
Uses the

SKYLIFT 4 STEP WAY

to Cut Unloading Costs \$6,222.50
Saves 4,750 Man-Hours!



1 DRIVE IN AND OUT OF BOXCAR WITH LOAD. Skylift moves through a standard 7 foot door. As shown here, operator drives inside car, forks pick up a pallet load of radio cabinets, and he moves out of car on his way to storage. Low collapsed height of 83 inches permits this. And it handles as easy as an automobile, with easy finger-tip lever control for lift and tilt, forward and reverse.

2

NARROW AISLES NO HANDICAP. As shown, Skylift is light weight, compact—moves through narrow aisles, turns sharp corners, moves to storage areas in minimum time, with minimum effort. Compare this with tedious, back-straining effort of moving cabinets manually. Yes, Skylift lightens labor's load, management's, too!



With an investment in only 2 Automatic Skylift Electric Trucks and 3 Transporters, STEWART-WARNER CORPORATION, Chicago, earned a return of over 75% in man-hours saved and handling costs reduced in their home radio division.

In the unloading of hundreds and hundreds of car-loads of difficult-to-handle radio cabinets, time studies and cost figures tell a truly amazing story of human energy saved, handling costs slashed almost unbelievably.

Without SKYLIFT, it took 25 man-hours to unload one carload of radio cabinets—a labor cost of \$32.75 per car. With Skylift, it took 6 man-hours to unload the same car—a saving of 19 hours, or \$24.89 labor cost saved per car!

Multiply this by the hundreds of carloads on the Stewart-Warner unloading schedule, and you see why the SKYLIFT 4 STEP WAY shown here can cut handling costs of unloading radio cabinets as much as \$6,222.50 in just one phase of their production operation. Similar savings may be yours. Mail coupon.

3



CEILING HIGH STACKING. Once in the storage area, a flip of the tilt and lift lever, and the load of radio cabinets is stacked easily and neatly to ceiling heights—as high as 130 inches, providing extra storage space free. When required for the production line, cabinets are brought to floor level just as easily, ready for movement to production.



4 TRANSPORTERS MOVE PRODUCT FROM STORAGE TO PRODUCTION. Automatic's mighty midget of electrical power receives the pallets of radio cabinets and moves them with easy push-button control to the production line. Dual-Lift Foot Pump, or ATCO Electric Lift gets load off floor into moving position, and Transporters again take the finished radios from end of production line to shipping—a 4-way product handling operation utilizing minimum energy, maximum savings!

An ATCO Specialist will make a free survey to determine how much you can cut your product handling costs. Mail coupon.



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DIV. OF THE SALE & TOWNE MFG. CO.

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Please mail me, without cost, complete facts on how I can cut my material handling costs with Automatic Skylift and Transporter Electric Trucks.

Have an ATCO Specialist make a free survey of my material handling methods and costs.

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City.....

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HANDLING
COSTS
with TOWMOTOR
MH***

* M H is Mass Handling—the systematic movement of the most units, in the shortest time, at the lowest cost.



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You'll learn how to recognize and analyze your handling problems with the Towmotor Materials Handling Analysis Guide. Send for a free copy.



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YOUR
PRODUCT
HERE

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COVER PHOTO—Large, cumbersome signs move through processing operations via monorails at Electrical Products Corp. Overhead handling provides for continuous flow and cross-over switches allow signs to be transferred into side fabrication areas. See article "A New Light On Neon Sign Assembly."

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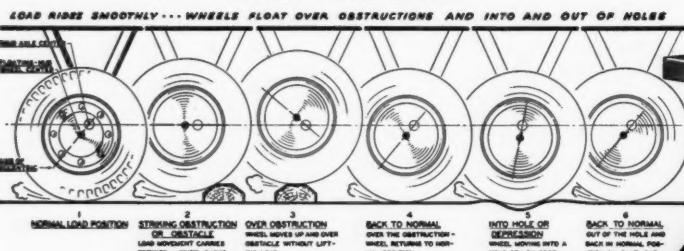
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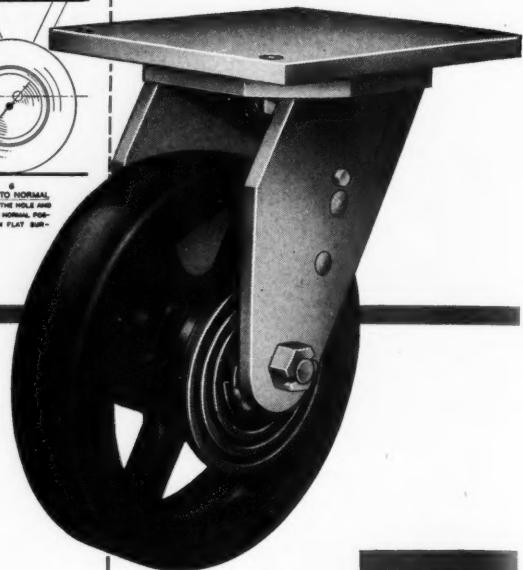
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DIAGRAMMATIC DRAWING OF "FLOATING-HUB" ACTION
SHOCK ABSORPTION



A VERY VITAL AND IMPORTANT ELEMENT OF THE "FLOATING-HUB" ACTION IS THE REDUCTION OF IMPACT FORCE --
BECAUSE OF THE ABILITY OF THE WHEEL TO "RIDE WITH THE PUNCH" -- BACKING AWAY WITH THE BLOW --

Swivel type
industrial trailer caster



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Making more kinds
of Casters...
Making Casters
do more

Bassick



CLARK CLAMP LIFT TRUCK



CLARK CLAMP LIFT TRUCK



Battery Electric Trucks and EXIDE-IRONCLAD® BATTERIES Speed up materials handling . . . cut costs

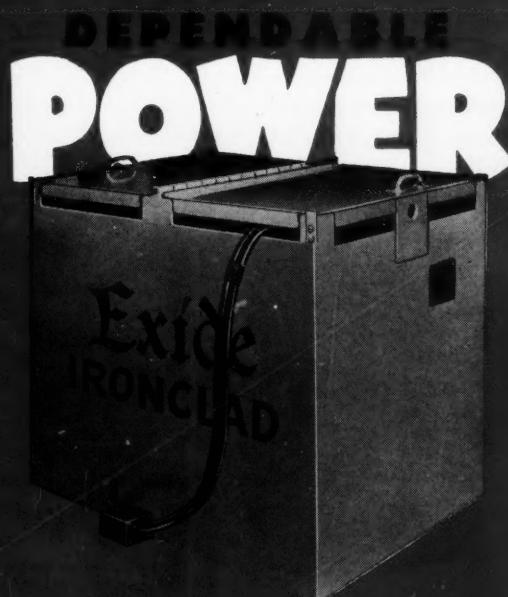
Every day, more and more companies are discovering the faster, safer and more economical way to handle materials. They are giving the job of lifting, hauling and stacking to the efficient battery electric truck. Time is being saved . . . more tons moved per man per hour. Handling costs have been cut as much as 50%. And more storage space is being utilized by high tiering.

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The unique construction of Exide-Ironclad Batteries results in all four of the vital characteristics of a storage battery: *high power ability, high electrical efficiency, ruggedness and long life.*

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Write for further particulars and FREE copy of Exide-Ironclad Topics which covers latest developments in material handling and shows actual case histories.



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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

POWELL

ALL STEEL

MATERIAL HANDLING EQUIPMENT

LIFT TRUCK PLATFORMS



STYLE NO. 2

U. S. Patent No. 1,812,218

POWELL Platforms are cold pressed from a single sheet of steel, corrugations being $1\frac{1}{2}$ " wide by $\frac{3}{4}$ " deep, spaced on 6" centers. They can be provided with Flat Top Sheet, Cut-out Legs, Knee Braces, Guide Angles, Lifting Eyes, Stakes, Stake Pockets and special super structures can be attached to meet every requirement. Adapted for use with all types of Lift Trucks.

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A two-piece welded box with heavy corrugated corner lugs. This box is capable of being tiered to any height desired.



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STYLE NO. 200

Representation in Principal Cities

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You can do them CHEAPER- BETTER

IT'S ALL HERE in the Roebling Sling Data Book . . . everything you want to know about slings to handle loads quickly, safely and economically.



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AND INDUSTRIAL WIRE CLOTH ★ LAWN MOWERS

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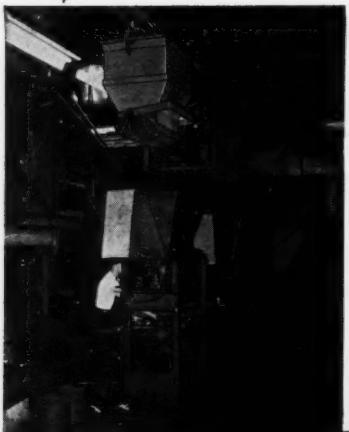
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Name _____

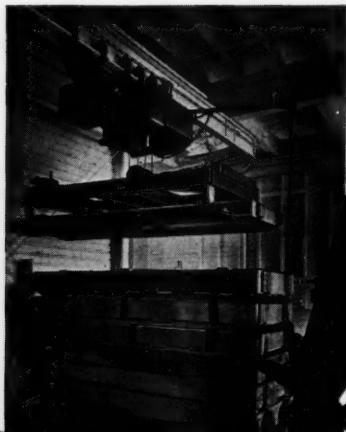
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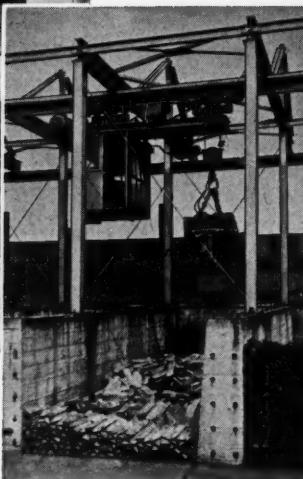
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Core Sand



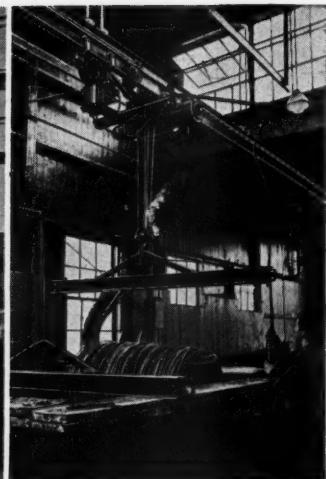
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American MonoTractor units perform automatic overhead handling operations with extreme accuracy and reliability. From unloading raw material to shipping finished products, these automatic carriers save costly handling labor by enabling unskilled help to spot heavy and cumbersome loads accurately and safely. American MonoTractors can be applied to carriers operating on any smooth

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A 56-page book showing
successful applications of
American MonoRail Systems.



THE AMERICAN **MONORAIL** COMPANY

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There's Double Charging Capacity in this bank of Federal 9159-AS Industrial Truck Battery Chargers. All are equipped with Automatic Charge Recycling Controls.

A SINGLE operation will charge TWO batteries in sequence . . . when you use Federal's Selenium Rectifier Industrial Truck Battery Chargers — with exclusive Automatic Recycling Control

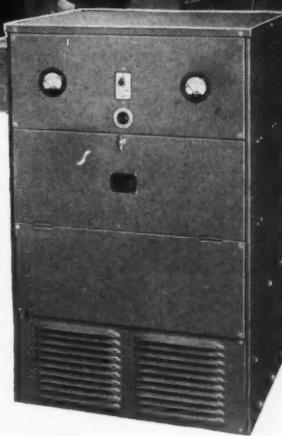
This exclusive Federal feature is like having another man on the job, without paying wages, to keep your trucks rolling at full charge. With Automatic Charge Recycling Control, a Federal Industrial Truck Battery Charger charges two batteries in sequence. The switch-over from the first battery to the second is automatic and unattended—and so is the final disconnection from A-C power.

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Federal Selenium Rectifiers. They have no moving parts—you can count on cool and quiet operation.

They charge either LEAD or EDISON type batteries—at the flick of a switch. They are easy to install . . . ruggedly constructed for heavy service . . . may be operated by unskilled personnel.

Plan to get maximum service at minimum cost out of your fleet of industrial trucks with a Federal-equipped charging depot. Send for booklet that tells you how. Address Department E-267.



Federal Telephone and Radio Corporation

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14 MOTO-TRUCS

at The S.C. Johnson & Son Co., Racine, Wis.
Manufacturers of the famous Johnson Wax Products

● The S. C. Johnson & Son Co. bought their first motorized hand truck in 1940. At that time The Moto-Truc Co was the only manufacturer of this type of equipment.

Today, after trying out other makes, they have standardized on the Moto-Truc and have a fleet of 14 in operation.

This nationally known company is one of many customers who order Moto-Trucs repeatedly in face of wide competition.

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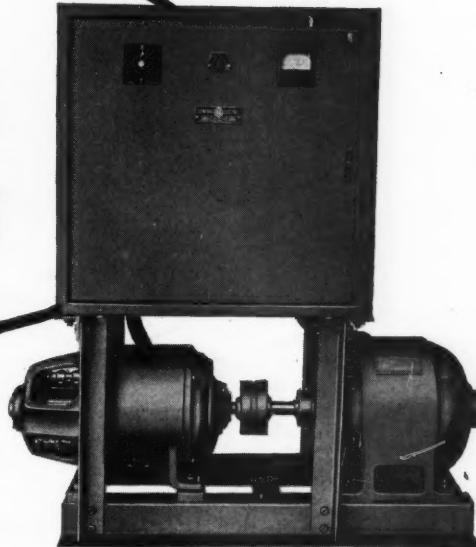
12-Volt Pallet Truck

The MOTO-TRUC Co., 1953 E. 59th St., Cleveland 3, Ohio.
Originators of Motorized Hand Lift Trucks

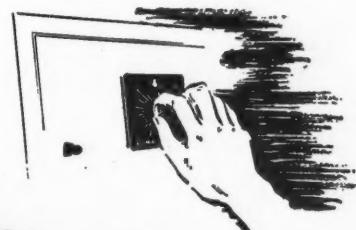
WRITE FOR BULLETIN 47-A showing the most complete line of motorized hand trucks such as Pallet, Platform, Hi-Lift, Telescopic Hi-Lift, etc.

it's *Easy* to use
 **BATTERY CHARGERS**

For lead-acid or nickel-alkaline batteries—for any number at a time—General Electric can supply the proper kind of motor-driven battery-charging equipment. With the help of your truck manufacturer, you can quickly select what you need from the many sizes available—knowing all G-E equipment is fully automatic, tailored to fit the battery, and protectively enclosed. All sizes comply with industry standards. More information in G-E bulletin, GEA-3923B. Simply ask your nearest G-E sales office or write *Apparatus Dept., General Electric Company, Schenectady 5, N.Y.*



New single-circuit automatic battery charger



Easy to operate. Fully automatic from start to finish, compact, easy to install, economical to operate—built for long life and dependable service—these motor-driven battery chargers comply with the Standard Specifications of the Electrical Industrial Truck Association.



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Easy to order. Your electric truck manufacturer can help you select and will order for you the right G-E battery charger for any number of trucks. From this—one of the most complete lines of battery chargers in the country—you can be sure of getting the best in design, materials, workmanship, and performance.

NEW BATTERY-CHARGING EQUIPMENT AVAILABLE
 THROUGH YOUR

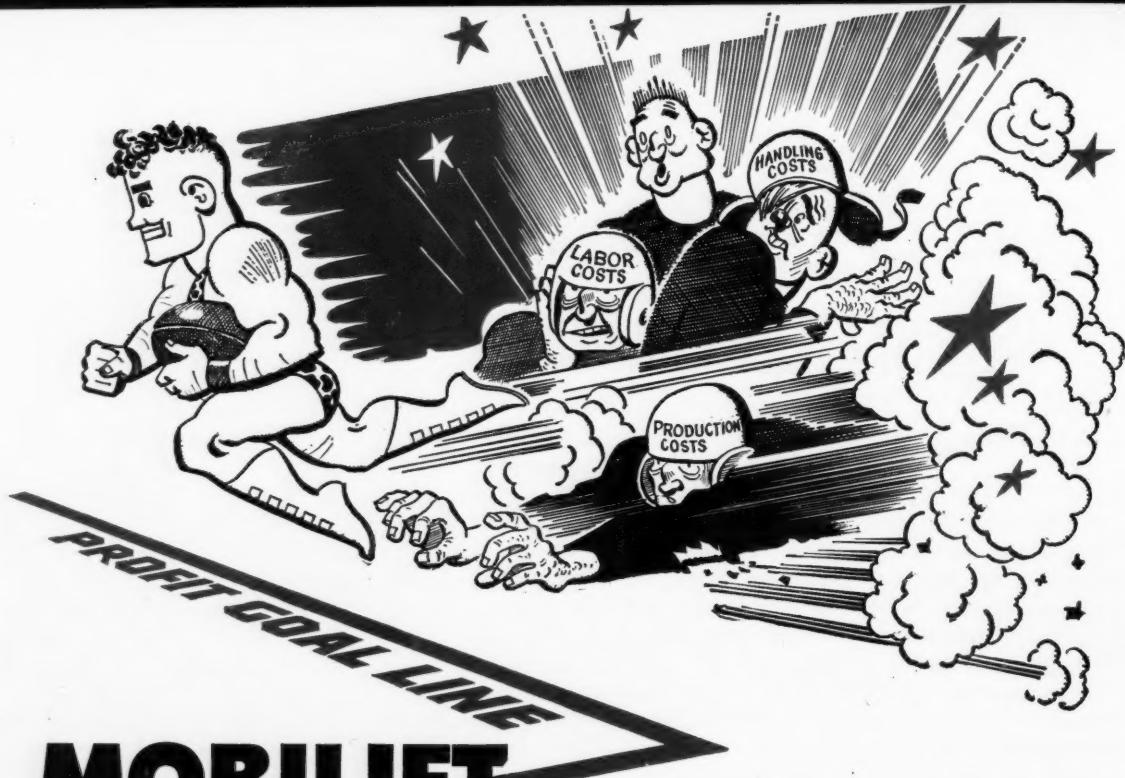


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GENERAL  **ELECTRIC**

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MOBILIFT

The All American Cost Cutter!!

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MOBILIFT eliminates costly re-handling and steps up the pace of your whole materials handling program. Its compact design, its shorter turning radius and the fact that there are no gears to shift, make it more maneuverable. It saves time on every trip. It saves storage space in your warehouse. It saves backbreaking labor and fatigue. MOBILIFT shows a big increase in the tonnage of materials moved and stacked per day.

MOBILIFT is built in three models—2000, 3000 and 3500 pound capacities. Send for complete details on how MOBILIFT can help you reach your goal of greater profits.



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BRAINARD

STEEL STRAPPING

saves 50%

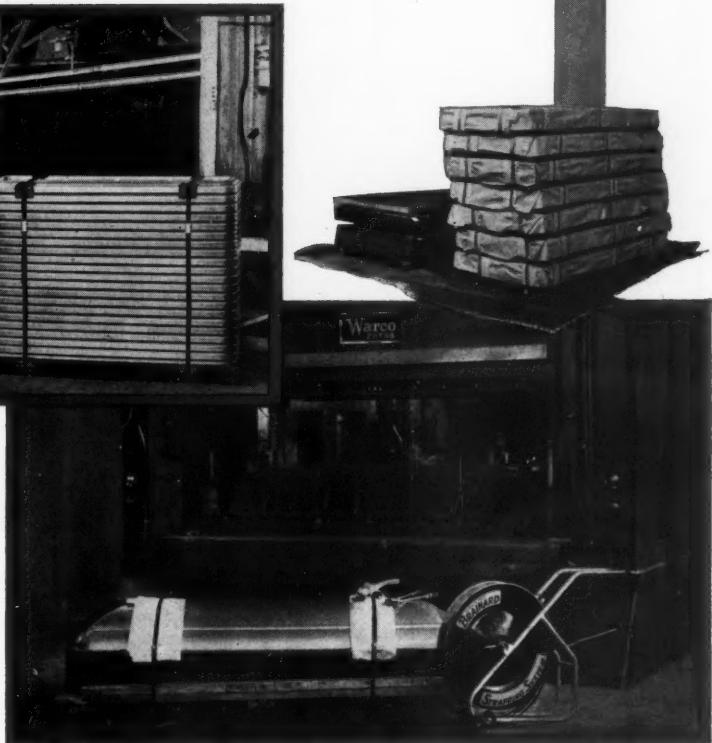
Savings of 50% in time and material were realized through the use of Brainard Steel Strapping in packing component parts for all steel caskets.



Casket bases firmly secured to shipping skid with two bands of Brainard Steel Strapping.

The need for a quick, low cost packing method for shipping the component parts of 50,000 all steel caskets from the sub-contractors plant to the prime contractor was solved by the use of Brainard Steel Strapping.

The component parts were placed on skids as the final operation was completed. Brainard Steel Strapping was then used to secure the parts to the skid, thus giving a compact load which could be moved with ease from any location in the plant to the shipping department. The prime contractor, upon receipt of the shipment of parts, needed only to cut the strapping and the parts were ready to be fed from



Casket lids neatly packed with Brainard Steel Strapping after the final press operation.

the skids for subsequent operations. The savings were realized due to the elimination of cumbersome time consuming blocking and crating, better utilization of shipping space and speed and ease in the application of Brainard Steel Strapping.

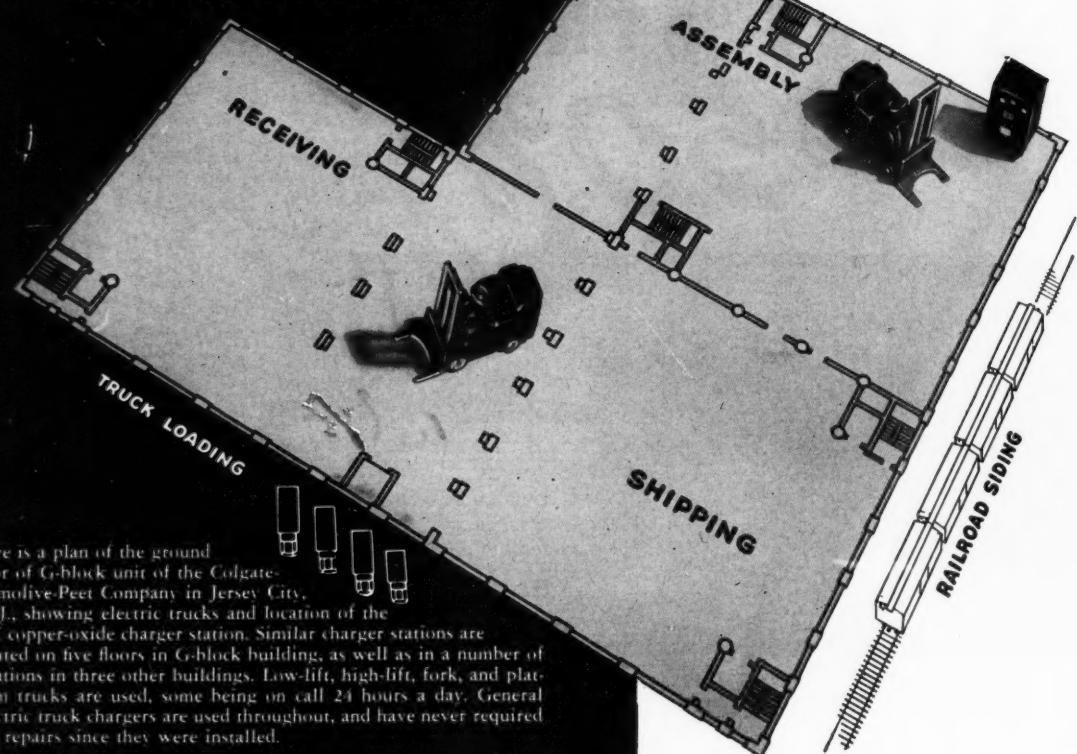


BRAINARD STEEL COMPANY
WARREN • OHIO



How G-E RECTIFIERS help to solve complex handling problems

AT COLGATE-PALMOLIVE-PEET



Here is a plan of the ground floor of G-block unit of the Colgate-Palmolive-Peet Company in Jersey City, N.J., showing electric trucks and location of the G-E copper-oxide charger station. Similar charger stations are located on five floors in G-block building, as well as in a number of locations in three other buildings. Low-lift, high-lift, fork, and platform trucks are used, some being on call 24 hours a day. General Electric truck chargers are used throughout, and have never required any repairs since they were installed.

Problems:

Huge volume and variety of soaps, lotions, and other toiletries to be assembled, packed, and shipped.

Receiving of raw materials and supplies, and shipping of packaged goods must be timed exactly, to eliminate costly tie-ups of limited working space.

Movement of goods on a number of floors in several buildings must be co-ordinated, to eliminate waste motions.

Existing layout of buildings and floor areas makes transfer of mobile equipment difficult, demands small turning radius in narrow aisles.

Mobile equipment has to meet requirements of unbalanced working shifts, peak load periods, uninterrupted operation.

Solution:

**ELECTRIC
TRUCKS
AND
GENERAL
ELECTRIC
CHARGERS**

Advantages:

Skid and pallet loads can be handled quickly and economically.

Dependability of G-E copper-oxide battery chargers keeps trucks on the job, facilitates planning of split-second schedules.

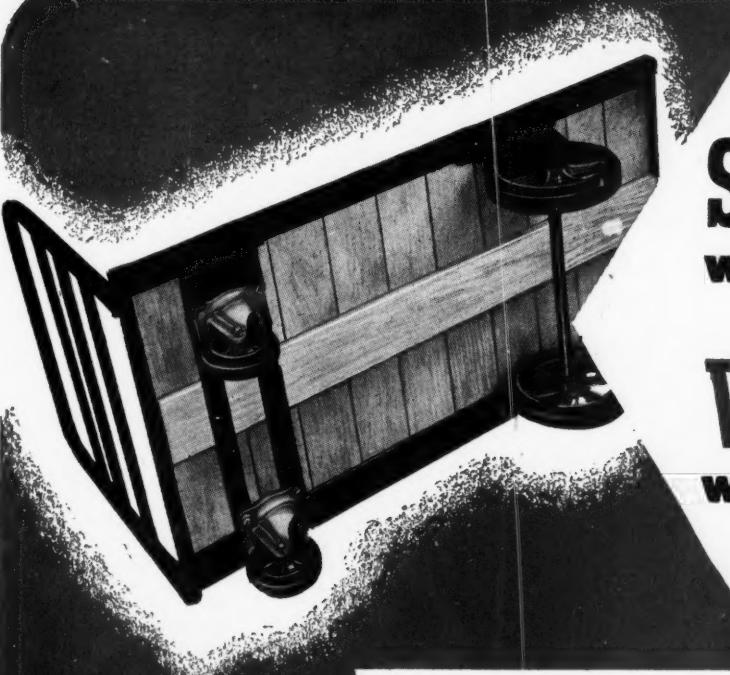
Electric trucks can be located where the need is greatest, with G-E copper-oxide chargers right at hand. Long, nonproductive truck runs to remote charging station can be eliminated.

Electric trucks have the required ability to turn in small radius. Strategic spotting of G-E copper-oxide chargers permits trucks to remain in one area.

Ready availability of chargers to trucks provides frequent opportunities for short booster charges during working periods and between shifts, keeps trucks active. Reserve batteries and trucks are also available when needed.

General Electric copper-oxide rectifiers for truck charging may be able to help you lower materials handling costs. Why not send for our useful booklet *Aids To Modern Materials Handling* today? Section A1-936. General Electric Company, Bridgeport 2, Connecticut.

GENERAL  **ELECTRIC**



**STEEL
WHERE IT'S NEEDED**

**WOOD
WHERE IT'S NEEDED**

**FAIRBANKS STEEL-FRAMED
TWO-WHEEL TRUCK** is available in 20 sizes and types to meet specific job requirements.



FAIRBANKS . . . **Steel-Framed Trucks**

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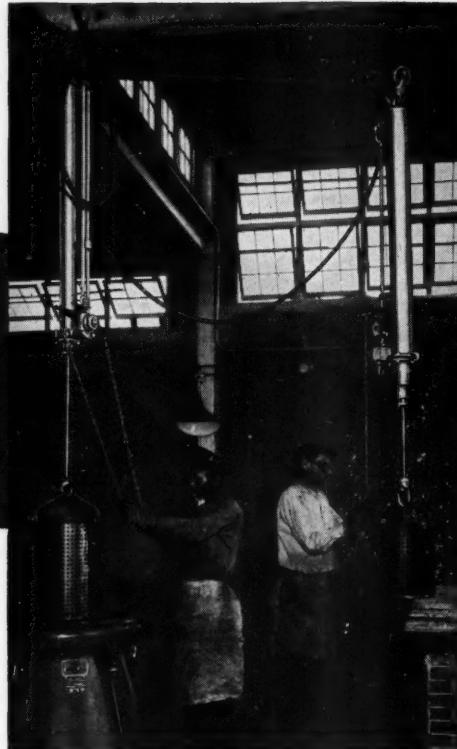
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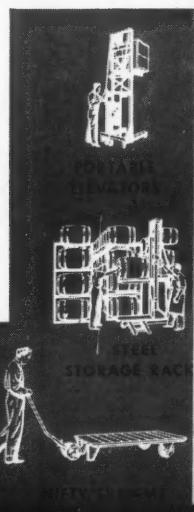
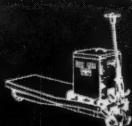
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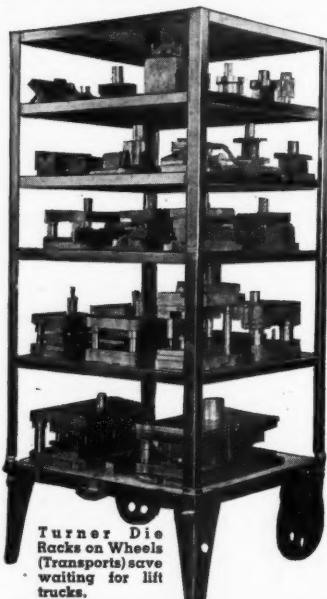
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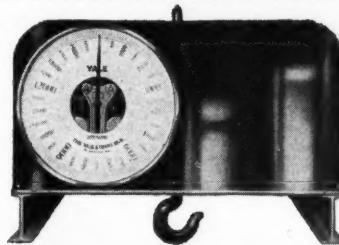
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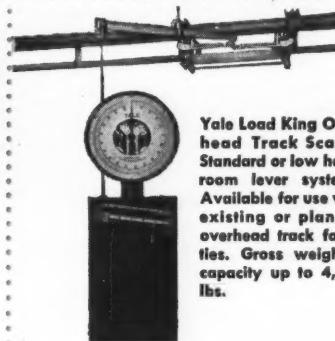
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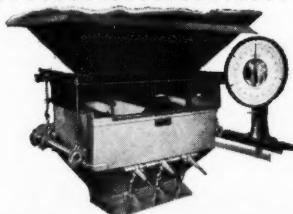
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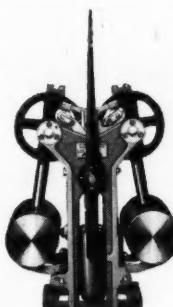
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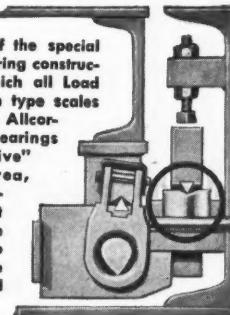
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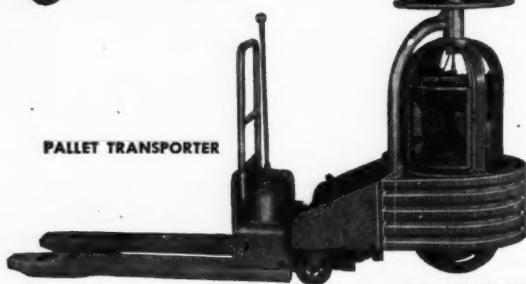


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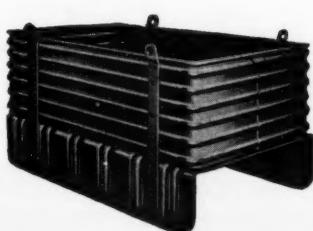
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The picture above shows a typical example of how these space-savers work. The Tiering Skid-Boxes are making use of valuable air rights, by efficiently stacking unit loads of parts ready for movement to production areas. Steel Tiering Skid-Boxes may be used equally well outdoors.

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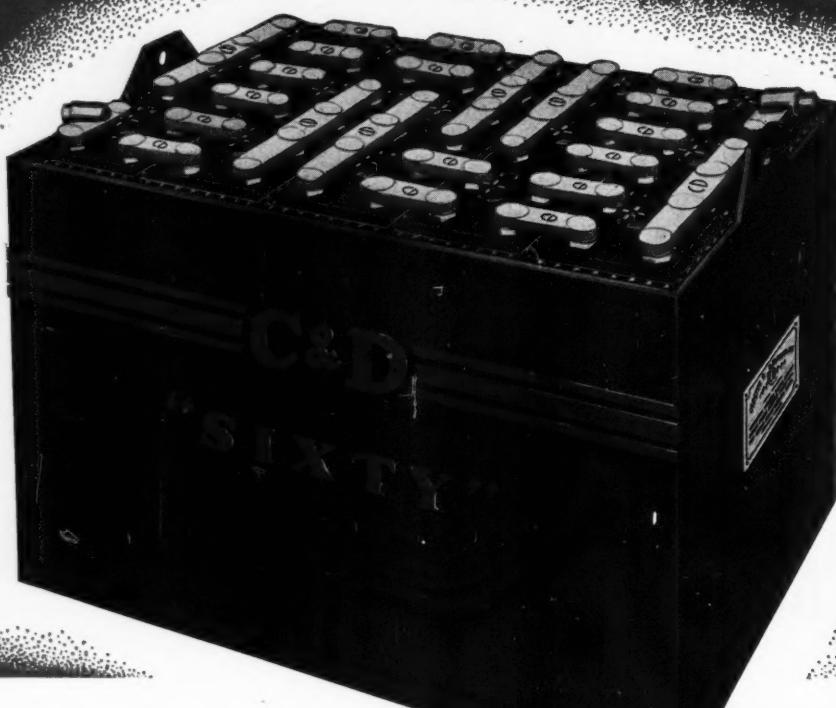
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The Flow Cost Analysis Contest Produces

More Than Prize-Winning Papers

You can participate in this important event

WHAT percentage of the total cost of a product is represented by material handling costs? How soon will an investment in handling equipment—of \$1000 or \$100,000—pay for itself?

These searching questions touch on the success or failure of every business. To stimulate constructive action on the subject of material costs, FLOW launched its first \$1500 Cost Analysis Contest in March of 1947.

The prize-winning papers have appeared beginning with the March 1948 issue. They are more—far more—than papers which received awards in a contest. They present FACTS and FIGURES which no management can deny. They offer performance data by which other companies can measure the effectiveness of their material handling operations.

Those papers spotlight some compelling revelations, among them: 1. Properly engineered handling methods increased unit production per man hour, putting operations on a profitable basis. 2. The need for new building was eliminated through revisions in layout and handling procedures. 3. Percentagewise, the dollar savings were uniformly impressive, whether the original investment involved a few hundred or hundreds of thousands of dollars. 4. Resultant methods improvements had a beneficial effect on working conditions, and thus on personnel relations. The papers list other specific gains.

The excellent papers contributed in the first Contest fully justified our contest project. Properly engineered handling procedures can mean the difference between profit and loss. In fact, a modernized handling program has given many a company a new lease on life while struggling to hold its own in a tough competitive field.

The overwhelming success of the first FLOW Contest determined us to launch the second Cost Analysis Contest. Again, the awards total \$1500. The closing date is November 15, 1948.

As stated in the editorial for March 1947: "Material handling operations are part of the Management function; well-engineered, low-cost movement of material is an integral part of a company's cost structure."

This year, more than double the number of entry blanks already have been requested than in the first Contest. As last year, the participants in the 1948 Contest will contribute to this great methods improvement project which will benefit all U. S. industry. That is the underlying significance of the FLOW Contest, thanks to the writers of the papers.

We invite you to write for your entry blank. You will benefit from the experience of other participants as their papers are published. Others will learn from your ideas. All of industry will benefit through the cooperative exchange of material handling ideas.

Living B. Hester

Publisher

FIRST SAFETY STANDARD FOR CONVEYORS....

By H. C. Keller

Engineering Manager, Lamson Corporation,
and member-at-large, Sectional Committee
on the Safety Code for Conveyors and Con-
veying Equipment, B20, American Standard
Association

Conveying equipment, speeding man's handling of materials, has eliminated certain hazards while creating others. New American Standard safety code outlines safe practices in design and use of conveyors.

M ECHANIZING for the sake of safety is of prime importance. One report of the National Safety Council points out that of 634 disabling material-handling accidents, 147 were from lifting with a bent back. Other injuries were traceable to insecure footing, improper placing of hands, lack of protective equipment, and so on. One glaring fact emerges—unnecessary handling of materials means unnecessary exposure to accidents.

The use of mechanical conveyors has reduced the accident hazards resulting from the manual handling of materials. At the same time, however, mechanical conveyors have introduced new hazards, which in 1922 prompted the American Standards Association Safety Code Correlating Committee to recommend the development of a safety code.

Joint sponsorship for this project was offered to the National Bureau of Casualty and Surety Underwriters and the American Society of Mechanical Engineers in May of

1922, was promptly accepted, and a nationally representative committee was organized to develop the standard. An excellent beginning was made but then little progress was shown due to the economic depression and the death of C. H. Newman, chairman of the Sub-committee on Plan and Scope. It was not until April of 1944 that a draft of the proposed code was distributed to industry for criticism and comments. The comments thus received were sent to the sectional committee in August 1944 for further study. In June 1946 an editing committee met to review the April 1944 draft with respect to the comments received. The result is the American Standard Safety Code for Conveyors, Cableways, and Related Equipment, B20.1-1947.

Safety to Worker Prime Consideration of Standard

The code stresses the fact that it is intended as a guide for safe construction, installation, operation, and maintenance of conveyors. It also stresses good housekeeping as of prime importance.

The committee realized the necessity of providing safety to the worker and the conveyor, but at the same time appreciated that any guards or other devices must not interfere with the practical application of the conveyor. Obviously, safety for the worker or operator

was given first consideration and wherever possible all other requirements were given second consideration. This is reflected in such parts of the code as the rules and recommendations to protect against overspeeding and overloading.

Reference is made to other established American Standards such as the Safety Code for Elevators, Dumbwaiters, and Escalators, the Safety Code for Cranes, Derricks, and Hoists, the Safety Code for Floor and Wall Openings, the Safety Color Code for Marking Physical Hazards, and the National Electrical Code. All applicable safety regulations or devices already in use are considered part of the new code.

Complete definitions of all the types of conveying machinery covered by the code are given. These include cableways, tramways, apron and belt conveyors, blower conveyor systems, bucket conveyors, chair conveyors, overhead trolleys, and pneumatic tubes, among others.

General safety regulations applying to all types of conveyors include such essentials as provisions for the safe working load; minimum diameters for pulleys, sheaves, and drums; arrangement of pulleys to prevent injury to operators; guards to protect maintenance personnel from contact with moving parts; and automatic interlocking devices

to stop a conveyor when the conveyor to which it feeds is stopped.

The American Standard Safety Code for Conveyors, Cableways, and Related Equipment, B20.1-1947, prepared by a sectional committee under the sponsorship of the National Bureau of Casualty and Surety Underwriters and the American Society of Mechanical Engineers, is available at 90 cents per copy.

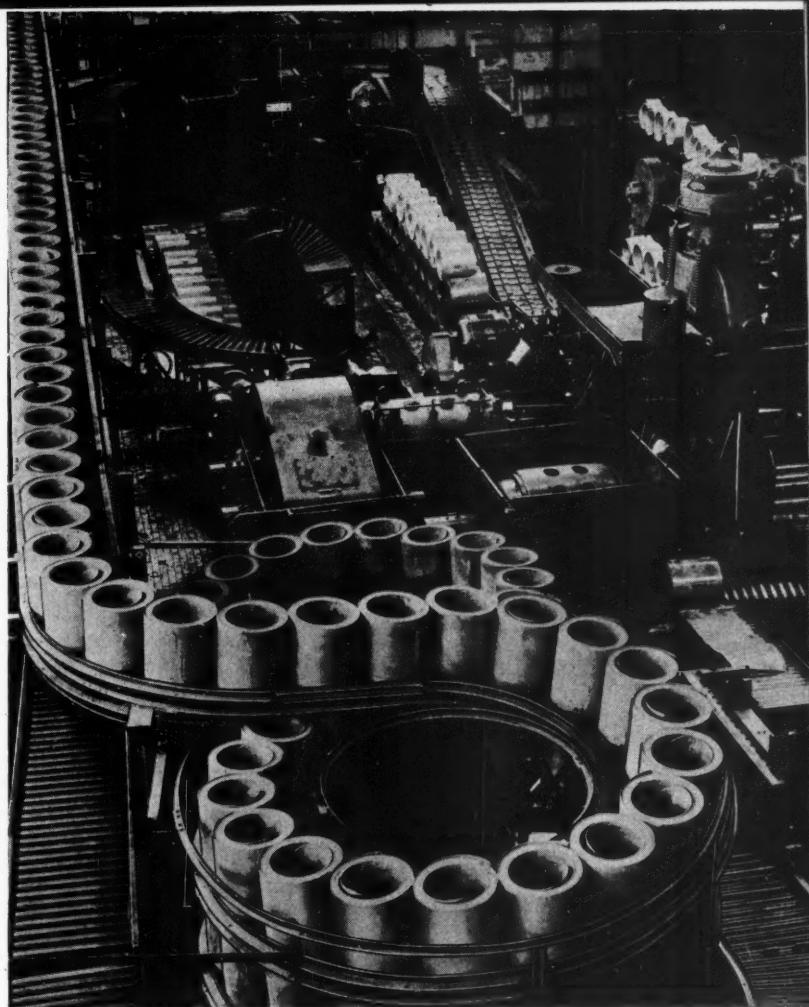
Requirements for Various Types Of Conveyors Covered in Part II

Part II of the code provides specific safety regulations applying to the individual classes of conveying equipment. These include such special provisions as requirements for operating ropes for the aerial cableway; requirements for belt conveyors to prevent an operator from slipping and falling when traveling rippers are used to discharge material from a moving belt; provisions to make it impossible for a man to open the doors to pressure vessels of blower conveyor systems while there is a positive internal pressure.

In providing safety requirements for the design features of conveying machinery, the code specifies that all moving parts, mechanisms, chains, gears, etc., shall be guarded where they constitute a hazard to personnel. Safe practices for the construction and installation of conveyors include provisions for adequate clearance and aisles, platforms and crossovers so that workers will not step on the conveyor, and overhead guards.

Considerable time was given to operating rules, as it was the committee's conviction that too much emphasis could not be placed on this phase of employee training. The careful instruction of the operator, in the function of the machine and the location of all stopping devices, is necessary to safe operation. Some of the fundamental rules include a provision that all starting and stopping devices should be clearly marked;

(Turn to page 42)



Heavy rolls of sheet steel are moved in the plant by a carefully engineered conveyor system designed to take the hazard out of manual handling.

This conveying system for handling crackers is designed to lower the plant's handling costs—and accident frequency rate.



WIRE RACKS ON THREE MOUNTINGS
 1. CASTERED DOLLIES 2. TRAILERS
 3. WIRE MESH PALLETS

A CUSTOM

Production JOB

... by Cadillac

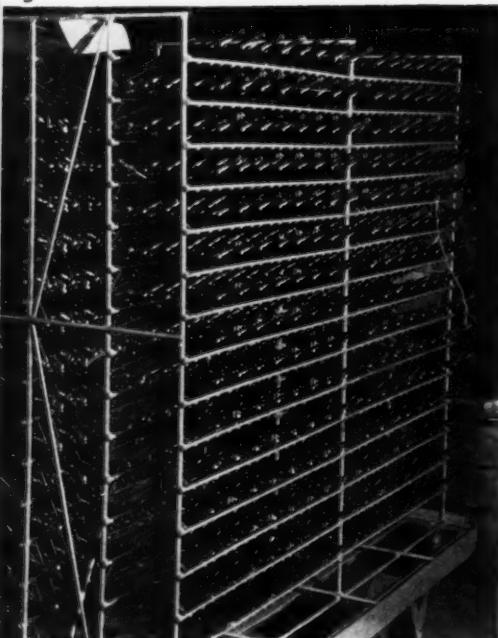


Fig. 1. CONVEYOR DELIVERS parts to touchup. The completed parts go into the wire rack.

Fig. 2. TRAILER - MOUNTED RACK for hood ornaments. They are held in rubber-coated slots.

For reasons of product protection and ease in repeated handlings of plated parts between closely spaced work stations, the Cadillac Motor Car Division adopted these wire racks. Listed are 13 distinct operating advantages.

By W. D. MILLINGTON

Supervisor of Tooling
 Final Assembly, Paint, Plating,
 Material Handling
 Cadillac Motor Car Division,
 General Motors Corp., Detroit

A MATERIAL handling department usually attempts to standardize on the fewest possible containers or process work carriers, the purpose being to take advantage of the economies inherent in the interchangeability of such equipment on a plant-wide basis as well as in simplified maintenance requirements. Negatively stated, the aim is to avoid the adoption of special-purpose equipment whose usefulness is limited to a particular function or department. However, we found that the policy of adhering to general-purpose equipment can be carried too far; at times it may be advisable to supplement existing equipment with special-purpose containers. The novel wire racks, shown on these pages, are a case in point. They supplanted metal pans and wooden racks that were formerly used in our plating department in connection with appearance items.

When is the addition of special equipment justified? We found the

answer by considering (1) processing requirements, (2) volume of items, and (3) requirements of the parts involved. The outcome of the study was that we adopted the wire racks for handling pressed metal and die cast parts (outward appearance items) in our plating department. Among these components are bumpers and stone guards, moldings, and radiator grille fins, hood ornaments and wheel disks. About 60 of these finished parts are used per car, and at any given period many thousands of items flow through the plating cycle, intermediate storage, inspection, and thence to the points of use.

Custom No Criterion of Efficiency

The processing requirement called for a work carrier that was maneuverable between closely spaced work stations and which would afford convenient handling of a multiplicity of parts in repetitive operations. The product requirement called for protection of plated and polished surfaces in order to prevent even the most minute scratches.

Previously, the practice had been to pack these items in metal pans, with paper or wood separators between each layer. The customary way is frequently not the efficient way. This method entailed stooping on the part of the operators, untidiness, rework, and the loading and unloading operations required too much time. From the space standpoint, too, something was left to be desired. The 24" deep pans were loaded one high on trailers, and congestion was likely to result in work areas. And since the pans were part of a general equipment category (used throughout the plant) it was at times difficult to keep sufficient of these containers on hand for the plating requirements.

As previously indicated, certain items were also handled on wooden racks or trees. These were of complex contour or otherwise specially vulnerable to damage. From an efficiency standpoint, the wooden work carriers were too often in need

Fig. 3A. RACK FOR bumper guards. Horizontal part of holders prevents radial swinging.

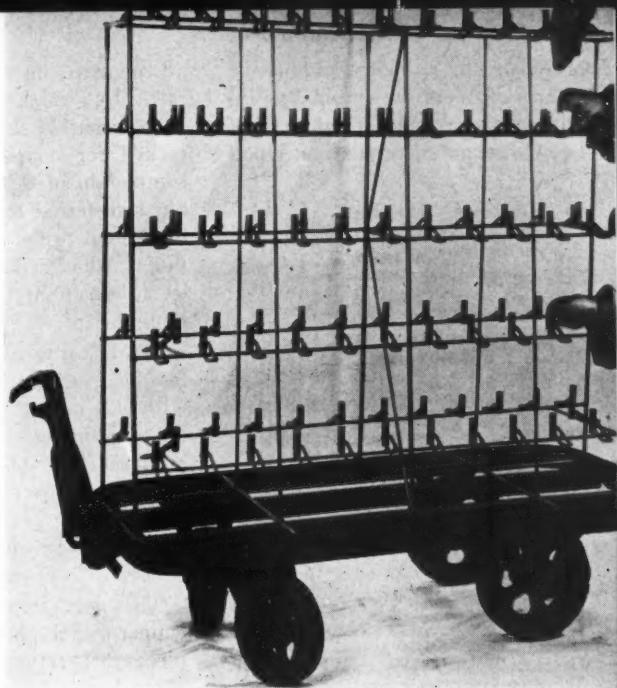


Fig. 3B. THIS VIEW shows the fully loaded wire rack for bumper guards. Note neatness.

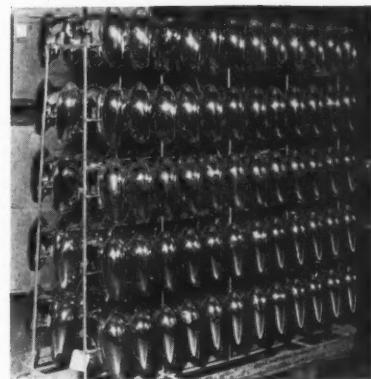
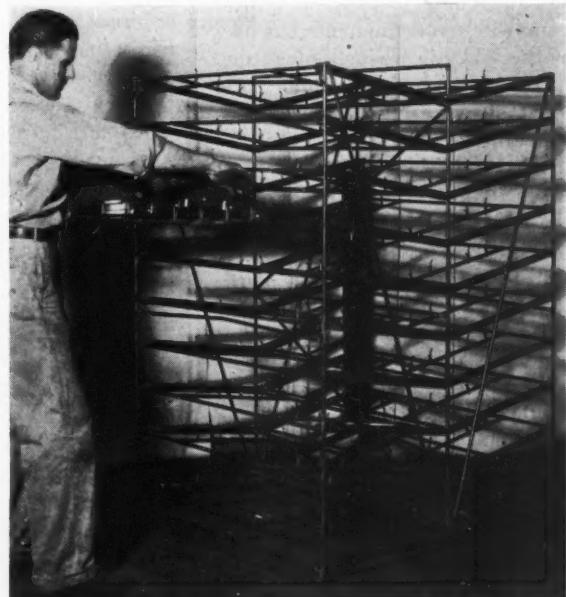


Fig. 4. RACK WITH SKELETON drawers. Clips hold pieces upright. Drawers slant to center.



of repair. In a highly productive setup such as in the automobile industry you can't afford having equipment out of circulation. Wood

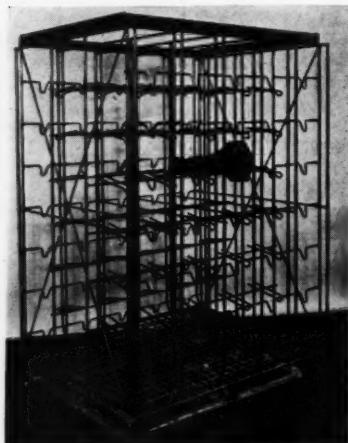


Fig. 5. RACK MOUNTED ON WIRE PALLET. This is used for castings, as told in the article.

also has a tendency to pick up metal particles, which in turn scratch the metal parts being carried. Too, wear in wood results in slots, grooves and holes, and the additional surface has to be cleaned, which adds to maintenance work and expense.

The wire racks avoided these problems, and facilitated the material flow in a number of ways.

Quick, Easy Loading and Unloading Essential

A brief review of the steps in the flow of bumper parts, a typical item, will reveal the numerous uses of the racks in a single operation. After welding, for example, the bumper parts are hung on a storage conveyor, which delivers to the touchup polishing section. Each touched up piece is deposited by the operator in a slot of the rack which has been spotted for his convenience. The slot has a longitudinal member down the center, on which the oblong, curved piece is automatically positioned. This quick disposal method is an aid to maximum output. Details on rack design are given in a later section.

The loaded rack is wheeled about 30 feet to the oil polishing operation, where all three parts of the bumper are polished in an automatic machine. The emerging parts

are reloaded on the same type of rack, by which the material is moved another short distance to be racked for copper plating. Upon completion of this step, the pieces are transferred to a wire rack for movement to the automatic copper buffer, which is followed by another move to final "touch up" copper buffing.

Incidentally, most of the moves involved range from 30 to 50 feet, with only one or two exceeding this limit. Only caster-mounted racks are used in the plating department. These units are readily turned (on four swivel casters) in narrow aisles. Other mountings are described in later paragraphs.

The next step of the cycle is copper-nickel plating, whence the pieces are returned to the same general area for a color buff. The loaded racks are then wheeled to the chrome plating conveyor. The finished parts are loaded on the same general type of rack, on which they are transferred to the inspection station. The visibility afforded by the open wire rack structure in these numerous steps of the plating cycle may be mentioned as another aid to production.

From this condensed description it is apparent that numerous pieces must be handled individually a number of times between closely spaced machines. With approximately 150 items per rack (for other pieces the number is more or less, depending on their size and shape), safe handling in quantity between work stations is assured. Thus both an individual "custom" job is made possible from the standpoint of processing and, from the handling standpoint, mass movement without the extra handling and time that would be required with the use of the awkward layer-upon-layer method in pans.

Various Mountings Provide Flexibility

Upon completion of plating, all items are transferred to a 40" x 20' inspection belt, a slow-paced line, where final inspection is made for possible additional color buffing. This table-type powered conveyor

is also the dispersal point from which all parts flowing through this layout are dispatched to the various points of use, as follows: 1. Painting. 2 Final car line assembly. 3. Fleetwood body building plant. 4. Cadillac's own body wiring assembly.

To receive the variously shaped parts of different sizes, the wire racks are lined up the full length of the inspection belt. Approximately

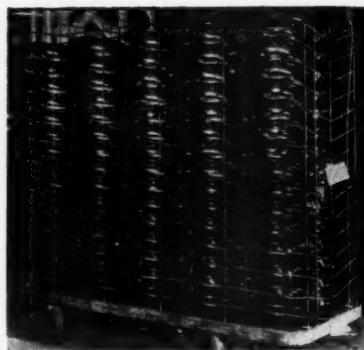


Fig. 6. THIS WIRE RACK holds 150 wheel disks. Various mountings provide flexibility.

25 different types of superstructures are used for all types of parts.

The types of mountings are important from the dispersal standpoint. It has already been mentioned that racks rolling on swivel casters are used exclusively on the short moves in the plating department. As can be seen from the photos, the carrying surface is a skeleton type dolly.

A second type are those mounted on trailers, which have hitches for coupling into trains when necessary. The tractor operation speeds the delivery of the parts on moves of some distance from the dispersal point.

A third type of mounting is the wire mesh pallet base, an eight-way entry, 40" x 48", which is used for shipping castings to a sub-assembly plant. Note this rack has an angle iron frame at the top for tiering purposes. While this unit is not used in the plating operation, it shows an interesting extension of our wire rack application.

For the most part the frames are of $\frac{5}{16}$ " gauge wire. In some instances, depending on the weight of

(Turn to page 46)

Only GOULD Has It!



Gould uses the Metallocope to photograph high magnification of the structure of cast lead connectors, posts and grid frames.

A modern research

laboratory with

up-to-manufacturing plant

where advance-design batteries

are constantly created—

proved before production.

The Metallocope, a combination high-powered microscope and camera, is helping Gould scientists find the answers to age-old lead casting problems. With it, the complex crystalline structure of lead castings has become an open book. As a result, information rapidly becoming available points the way to even stronger, electrically more efficient grid frames, posts, clips and connectors. For better batteries always, choose GOULD—FOR FIFTY YEARS THE CHOICE OF ENGINEERS.



The Gould "Thin"—America's
Fleet Industrial Truck Battery

GOULD

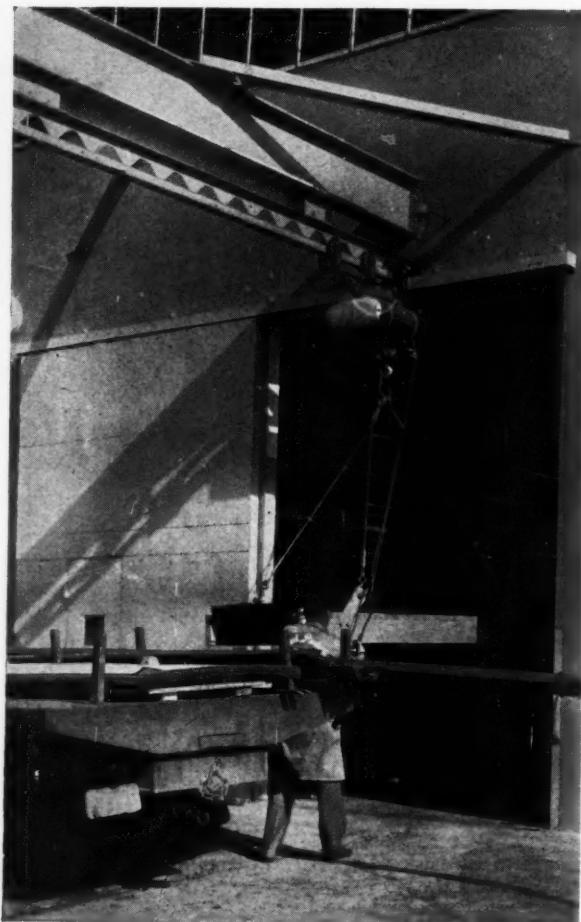
STORAGE BATTERY
CORPORATION

Including the Storage Battery Division
of Philco Corporation

TRENTON 7, NEW JERSEY

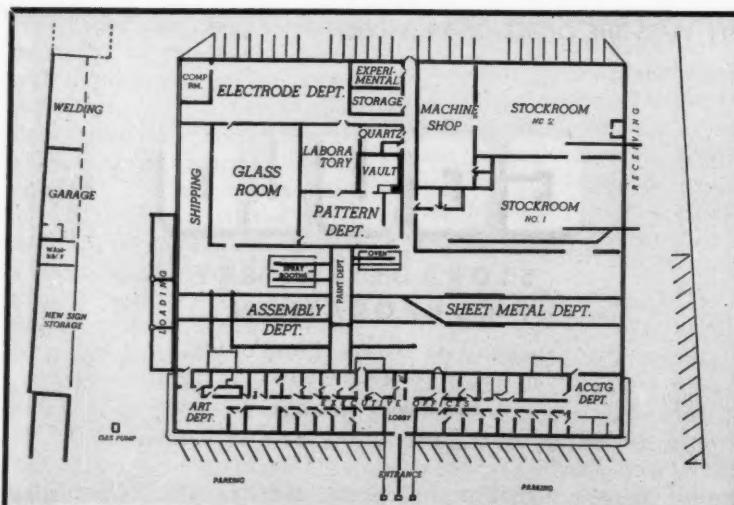
Always Use Gould Automobile and Truck Batteries

Electrical Products Corporation sheds...



MONORAIL EXTENSIONS, 16 feet long, at the receiving dock. Note the three-ton power hoist.

FLOOR PLAN shows layout of assembly departments. Monorails provide continuous flow.



NEW LIGHT ON NEON SIGN FABRICATION

MONORAIL SYSTEM ELECTRIC HOISTS

This operation marks a new step forward in the neon sign industry. Hoist handling on a monorail system affords continuous, safe flow from the receiving dock and storeroom to sheet metal operation, spot-welding, finishing, painting, final tube assembly, crating and shipping.

By L. A. Rice,
Vice President in Charge of Production
Electrical Products Corporation, Los Angeles

ONE of the most important considerations in the construction of the new half-million dollar building for Electrical Products Corp., Los Angeles, Calif., is the hoist handling and monorail system, an overhead installation embracing monorails and cranes that facilitates straightline production of multi-unit and custom-built neon signs throughout the 60,000 sq. ft. manufacturing area.

Fast Sheet Steel Unloading

The monorail conveyor system starts at the receiving dock, where trucks are unloaded by power hoists running on two 20-foot lengths of the overhead rail network extending from the stockroom over the dock, as shown. Unloaded sheet metal is rolled to stockrooms and stored by large lifts. Hoist handling has slashed the time required for a 28,000-pound load of steel to a small fraction of the number of

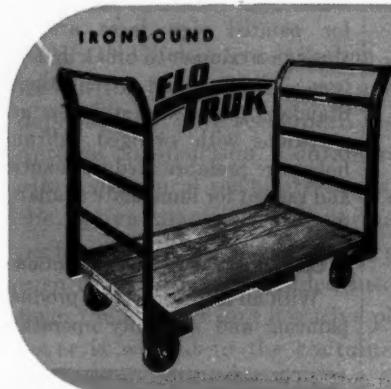


★ Here is the truck that easily lifts and moves heavy cylindrical objects. It meets the demand for a simple to use unit that will prevent damage to products and insure operator safety. Heavy duty unit has a capacity of 1500 lbs. with product diameter up to 40". Fully illustrated in bulletin 8RT.

Sturdy Ironbound units for FASTER, SAFER HANDLING in factory, warehouse, shop & store!

The illustrated Ironbound units are typical of those available from stock in sizes and capacities to meet varied requirements. The design and construction of Ironbound equipment has been proven over many years in hundreds of plants where tough handling problems have been met successfully. Whether your problem can be solved with Ironbound equipment from stock or whether specially designed Ironbound units are necessary for a correct solution, Ironbound engineers will be glad to analyze and discuss such problems with you. Ironbound designs and manufactures a full line of —

SKIDS ★ SEMI-LIVE SKIDS ★ DOLLIES ★ FLOOR TRUCKS



★ This all-purpose unit has selected hardwood $1\frac{1}{8}$ " deck and all-bolted assembly. Rated capacity with 8" diameter semi-steel roller bearing wheels is 2,000 lbs. Can be had with one handle or two as illustrated.



★ The "short-haul" semi-live skid will carry loads up to 2,500 lbs. safely and easily. Constructed from new steel and selected hardwood with bolted construction. A properly planned system will provide empties where need is greatest and speed production.



★ For moving heavy machinery, bulky crates, cases, etc. Used in pairs, they have an 8,000 pound capacity. Forged one-piece nose.

THREE STANDARD IRONBOUND WORK-SAVER DOLLIES



"HUSKY"
A general purpose unit with open frame and flush top.



"HANDY"
A dolly for handling furniture and similar heavy bulky items.



"HAULER"
A dolly designed for moving milk cases, softdrink cases, boxes, etc.

Send for Catalog GP-7 "Increase Production & Lower Worker Fatigue" —

Materials Handling Division

IRONBOUND BOX & LUMBER COMPANY

30 HOFFMAN PLACE

HILLSIDE, NEW JERSEY

IRONBOUND
MATERIALS HANDLING EQUIPMENT

NEW DRUM TRUCK!



AMERICAN ALL-STEEL DRUM KING

Easy One-Man Loading! The new American Drum King Truck makes drum and barrel loading and hauling an easy, safe, one-man operation. Drums can be loaded quickly and maneuvered with ease and complete safety. Use this new American Drum King to speed hauling and reduce operating costs. All-Steel construction keeps the truck on the job . . . keeps maintenance costs down.

ONLY DRUM KING HAS ALL THESE FEATURES!

① GREATER SAFETY

Drum King Stands Upright!



Unique "floating axle" design permits the truck to stand in a safe, space-saving upright position when not in use. This feature eliminates the hazardous condition of drum trucks lying on the floor.

② EASY TO LOAD

Roll Drum King Right Up To The Job!



No need to "jockey" or "inch" the truck into position. Wheels roll truck up to drum, fast and easily. Hook drops over chime of drum when released. As the load is broken, the nose prongs automatically slide under load and wheels automatically move into load-carrying position.

③ SAFE, FOUR-POINT LOAD SUSPENSION

Permits Hook To Be Disengaged After Truck Is Loaded!



Greater safety for both operator and truck is assured because, should the loaded truck strike an obstacle, the load is free to leave the truck without pulling operator and truck along with it.

- ④ LOADED TRUCK CAN STAND ALONE
- Semi-Upright Position Keeps
- Load Ready To Move!
- Hinged wheels permit
- the loaded truck to
- stand in semi-upright position.



- ⑤ TRUCK ROLLS EASILY
- Drum King Reduces Operator
- Fatigue--Speeds Hauling!
- Full weight of load is carried over strong pressed-steel rubber-tread wheels.
- Operator easily balances load
- does not carry it.



Mail This Coupon Today!

Please send me your new American Hand Truck Bulletin HTB48 featuring the complete line of American Pressed-Steel Hand Trucks.

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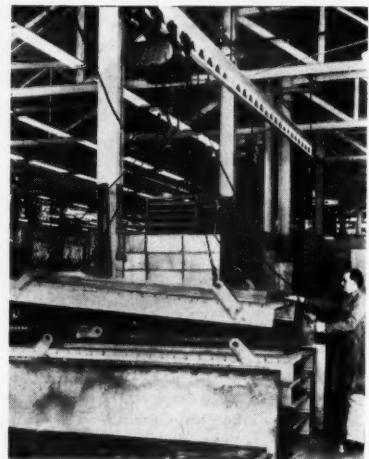
AMERICAN
PRESSED-STEEL
HAND TRUCKS

The American Pulley Company

4294 WISSAHICKON AVE. • PHILADELPHIA 29, PA.

hours required previously.

Moving from stockroom into

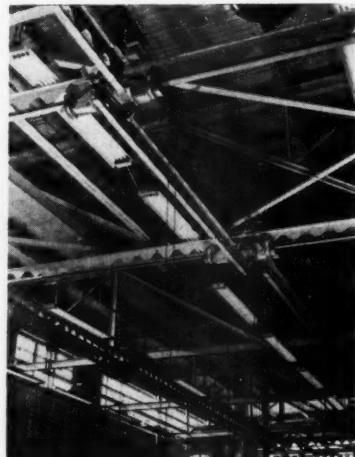


POWER HOIST facilitates stacking of sheet metal in stockroom. Material travels via monorails.

sheet metal fabrication, all sheets for painted sign faces are put through a crimper to break up halation (background reflections). Standard parts, face stiffeners and partitions with swaged lightning holes, are prefabricated in quantity and racked for immediate availability.

Continuous Flow In Fabrication

With all metal working, product-painting and assembly operations



A CROSS-OVER SWITCH enables traffic to be transferred from one monorail to the other.

concentrated in a single 80' by 300' bay, a comprehensive inter-connecting monorail network serving (Turn to page 42)

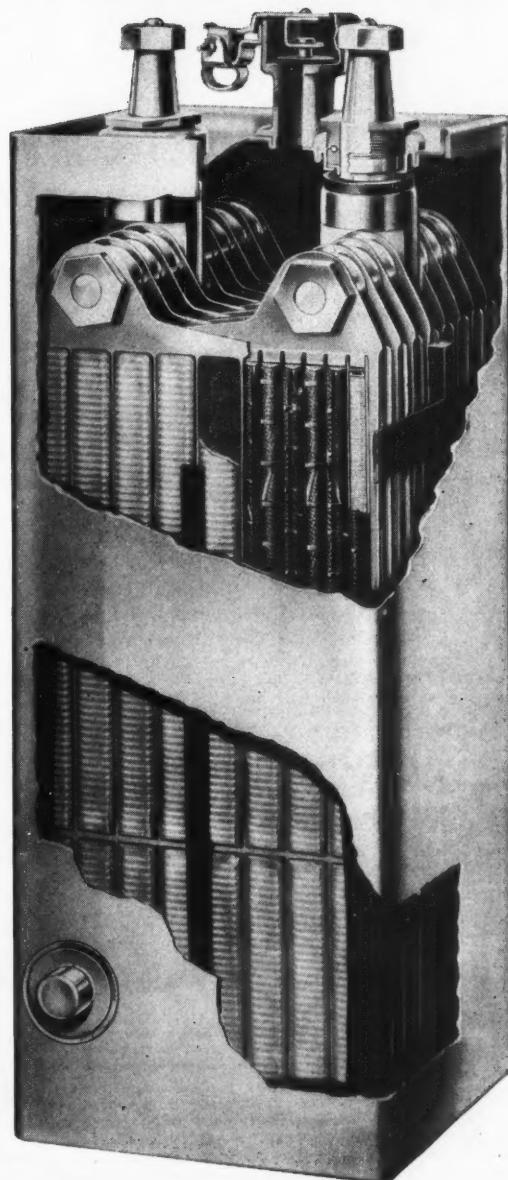
STEEL CONSTRUCTION

the "inside story" of **EDISON** **STAMINA**

BUYING a new battery industrial truck? Planning to repower an old one? In either case you'll want to specify a battery that will stay on the job—out of the repair shop . . . one that will stand up under the shocks, vibration and hard usage prevalent in material-handling services.

EDISON Nickel-Iron-Alkaline Storage Batteries, known for nearly half a century for long life and dependability, are recognized for their rugged and durable construction. Containers, pole pieces and other structural parts are made of STEEL. Even the active materials are permanently locked in perforated STEEL tubes and pockets. These in turn are securely assembled into STEEL grids to form the positive and negative plates. The STEEL cover is welded to the container—proof that no internal trouble is anticipated for the normal life of the cell.

EDISON Batteries have been turned over, dropped off loading platforms and docks—even down *elevator shafts*—with little or no damage, and still delivered their full service life. The fact that they can withstand such accidents indicates the extreme dependability that can be expected from them under more normal conditions.



EDISON
Nickel • Iron • Alkaline
STORAGE BATTERIES

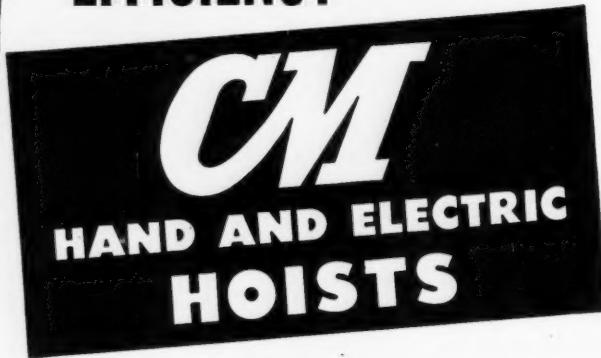
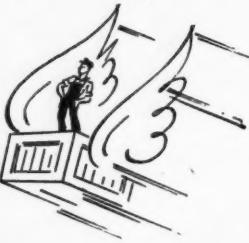
EDISON STORAGE BATTERY DIVISION OF THOMAS A. EDISON, INCORPORATED, WEST ORANGE, N.J.

In Canada: International Equipment Company, Ltd., Montreal and Toronto

ADVANTAGES OF EDISON NICKEL-IRON-ALKALINE BATTERIES

They are durable mechanically; can be charged rapidly; withstand temperature extremes; are foolproof electrically; can stand idle indefinitely without injury; are simple and easy to maintain.

Engineered to move materials
with **SPEED**
SAFETY
EFFICIENCY



CM overhead materials handling units are designed to increase plant output and lower production costs by mechanizing and speeding the movement of materials. If you are improving or expanding your plant, it will pay you to check up on CM industrial hoists. Three of the most popular units in the CM line are...

The CYCLONE Model M High speed heavy duty hand hoist. 98% efficient. 1 ton capacity weighs only 35 pounds. Sealed in lifetime lubrication. Capacities from $\frac{1}{4}$ ton up.



The COMET Portable, speedy, sturdy electric hoist. One-hand control. For plug in on 110, 220 or 440 volts. Capacities from $\frac{1}{2}$ to 1 ton.

The METEOR Fast, heavy-duty electric hoist. Airplane type cooling. Push button control. Single or two speed. Capacities from $\frac{1}{2}$ ton up.

Write today for literature and the name of your local distributor who handles the complete line of CM overhead materials handling equipment.

CHISHOLM-MOORE
HOIST CORPORATION

(Affiliated with Columbus McKinnon Chain Corporation)

GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.

SALES OFFICES: New York • Chicago • Cleveland • San Francisco • Los Angeles

See Us at Booth 116, National Safety Congress, Stevens Hotel—Oct. 18 to 22—Chicago

Institute Chapter and Association Activities

CARDS have been sent to approximately 150 men in the Houston, Texas area, for the purpose of organizing a Material Handling Chapter. Men actively engaged in material handling and sales representatives of such equipment have been contacted. T. E. Parish, Manager, Production Control Division, Hughes Tool Co., is handling the organizational work. It is hoped to have an initial meeting within a few weeks.

THE Materials Handling Society of Philadelphia have elected officers for the coming season. They are: president, James B. McGinn, American Viscose Corp.; vice president, James McDonald, General Electric Co.; secretary & treasurer, C. F. Gross, C & D Batteries, Inc. The next meeting is scheduled for the third Friday in September. No meetings were held during the summer months with the exception of directors' meetings at which time plans were discussed and formulated concerning arrangements for the coming season.

THE Toledo Chapter of the Material Handling Institute, Inc. has been formed by 42 material handling men representing 20 industries in the Toledo area. Nine meetings a year are scheduled at which material handling experts will present new developments. Plant tours are also being planned. Officers elected were: E. H. Marek, Willys-Overland Motors, Inc., president; M. A. Cox, Doehler-Jarvis Corp., vice president; A. E. Fryer, Editor Toledo Technical Topics, secretary; and N. W. Franklin, The Electric Auto-Lite Co., Treasurer.

CHARLES F. BANNAN, was elected president of the Cali-

fornia Metal Trades Association at its annual meeting in San Francisco. He succeeds Joseph Moore, Jr. Also elected were Cloyd Gray, vice president and Roy Tatan, treasurer. The California Metal Trades Association has for many years represented approximately 500 northern California metalworking firms in contract negotiations with the various metal trade unions.

THE 1948 convention of the Southeastern Warehousemen's Association was held recently in Atlanta, Georgia. One hundred and twelve people were in attendance. The following men were elected officers for the coming year: president, F. E. Stevens, Jr.; vice president, Harry Hudson; second vice president, W. L. Overton; and secretary-treasurer, Jack Woodside.

Watch for the new 1949 FLOW Directory. Every material handling engineer, shop superintendent, and plant manager should have one.

SPEEDWAYS

The SHORTEST, FASTEST CHEAPEST DISTANCE BETWEEN TWO POINTS!

Low-cost SPEEDWAYS move cartons, cases and crates—boxes and cartons in less time, with less manpower, at less cost.

Cut Your
MATERIAL
HANDLING
COSTS
With
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GRAVITY
CONVEYORS



SPEEDWAYS standard model—15" wide overall with 10 wheels per foot—can handle 90% of your cartons, cases, boxes, packages, etc.

Write for FREE 2-color illustrated folder

KEEP 'EM ROLLING WITH

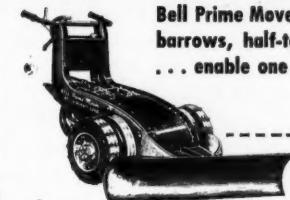
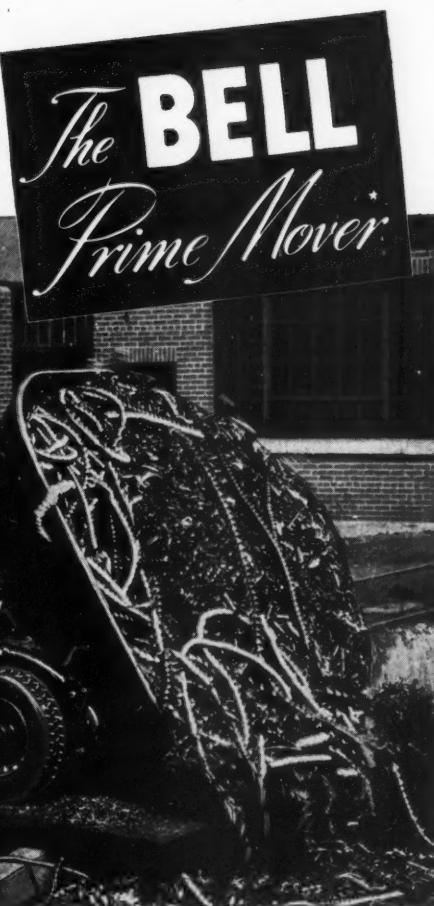
SPEEDWAYS

CONVEYORS, INC.

1242 Niagara St., Buffalo 13, N. Y.

Represented by experienced Material Handling equipment Engineers in principal cities.

It saves up
to \$36 daily



Bell Prime Movers combine the functions of giant wheelbarrows, half-ton platform trucks, and baby bulldozers... enable one man to do the work of four.



Here are just a few examples of how Bell Prime Movers pay for themselves in an amazingly short time. If other companies can make these savings, so can your company...

A Pittsburgh steel manufacturer reports daily savings of 3 to 4 man-days per machine hauling residue from blast-furnace cleaning;

pouring concrete foundations; carrying ore to open hearths.

A large cemetery, with numerous 25% grades, saves 3 to 4 man-days per machine each day on wheelbarrow labor... removing surplus dirt, back filling, removing flowers, hauling matting; moving tools, tile, markers; pouring concrete foundations.

Many contractors report savings up to \$36 per machine each day on concrete pouring, "mucking", clean-up work. They acclaim Prime Movers for work on upper floors, for climbing steep ramps, for taking the abuse of continuous rough service.

We have hundreds of case histories, covering almost every type of business. We'll gladly provide you with these additional facts as well as the names of nearby distributors who sell and service the Prime Mover.

A Few Features

- bucket holds 10 cubic feet... 18 with sideboards
- 50-inch scraper blade
- 9-square-foot platform body
- gear driven... no belts or chains
- clutch, engine, transmission fully enclosed... run in oil

A PRODUCT OF
BELL Aircraft
CORPORATION

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Please send me additional facts about the Bell Prime Mover.

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Company.....

Address..... City, Zone, and State.....

ON THE



PALLET

NEWS · VIEWS · TRENDS

A SESSION devoted to material handling in the steel industry will be a feature of the convention exposition of the Association of Iron and Steel Engineers to be held in Cleveland, Sept. 28-Oct. 1. The material handling session is scheduled for Friday morning, Oct. 1, and will include a symposium on the re-design of handling equipment for heavy coils. Chairmen of the session will be H. W. Neblett, Inland Steel Co., and A. G. Erickson, Carnegie-Illinois Steel Corp.

THE American Society of Mechanical Engineers, through its Material Handling and Management Division, will co-sponsor the Third National Material Handling Exposition to be held at Convention Hall in Philadelphia, Jan. 10 through 14, 1949. At the same time, ASME will also conduct its Material Handling Conference.

AN AERIAL tramway nearly five miles long, part of a vital project in the industrial reconstruction of western Europe, is located in the foot-hills of the Auvergne Mountains in France. This latest model in the science of transporting men and materials through the air by means of wire rope, was scheduled for completion by July 31. The news was reported by the wire rope and tramway engineering department of the American Steel & Wire Co.

A NEW course in packaging and packing has been developed for the 1948 fall term in the Management Program of the Evening and Extension Division, City College of New York, School of Business. Dr. Robert A. Love is the director of the division. The course will stress the functional aspect of the packing and packaging of materials.

AN INCREASE of 29.6% in freight loss and damage for the year 1947 was reported by the Association of American Railroads. Cost figures show a total loss figure for 1946 of \$94,300,672 and for 1947, \$122,215,-948. A breakdown of causes will govern the necessary corrective measures to be undertaken. Special consideration will be given to delay factors, and unlocated and concealed damage.

DEVELOPMENT of a safety code for industrial power trucks was begun in New York recently with an organization meeting of a new American Standards Association Committee. Sponsor for the code is The American Society of Mechanical En-

gineers. It was suggested that users, builders, and all others concerned in the application of industrial trucks would be benefited by a safety code such as the ASME has drawn up for other classes of machinery. Mr. C. W. Meldram, Clark Equipment Co., was elected chairman of the new committee and Mr. C. F. Kells, Electric Industrial Truck Assn., was elected secretary. Next meeting of the new committee is scheduled for Thursday, Sept. 30, at ASME headquarters, New York.

THE new G-E silicone material which can be pulled like taffy, broken with a quick snap, or bounced like a ball, will be used in all of the U. S. Rubber Company's top grade golf balls. Together with a new type of electronic winding, the silicone center is said to bring greater distance, and improved "click" and "feel" to the ball. According to E. G. Brown, a vice president of the U. S. Rubber Company, the new ball represents the most significant advance in golf ball construction since rubber thread was first used in golf balls. General Electric said that the application of the silicone bouncing putty to golf balls is the first large use of this particular type of silicone material.

ACCORDING to a recent announcement, new equipment for the manufacture of Roebling Lock-Clad Aircord, a development which provides improved sensitivity of control at any altitude, is now in operation at the Los Angeles assembly plant of the John A. Roebling's Sons Company of California. The installation of these additional facilities as an adjunct to the main plant at Trenton, New Jersey, will provide exceptional delivery for all points, as well as increased production capacity for a full range of air controls.

TEST runs of the Elgin, Joliet, and Eastern Railroad's 2000 H.P. diesel-electric road transfer locomotive, the world's most powerful, have indicated that the new engine can replace four standard Mikado-type steam locomotives now used in the Chicago Outer Belt Line service. Announcement of the results of the test runs was made by the Baldwin Locomotive Works. The heaviest load hauled in the tests was 3,680 tons of freight from Joliet to West Chicago.

The engine has several new features, including two trucks of twelve wheels driven by six motors, powered by two Baldwin eight-cylinder, four-cycle diesels, each having 1000 horsepower available for traction.

HOW AUTO MAKER CUTS SHIPPING COSTS

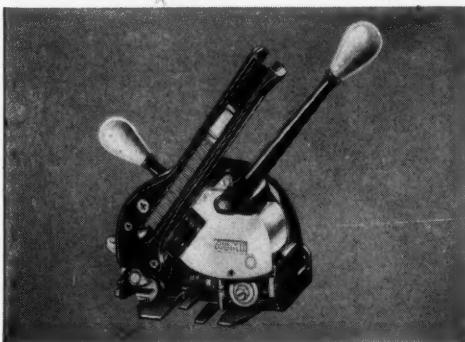
Nash Motors Division uses low-cost Acme Steelstrap to speed units to production line.

The Milwaukee Parts Plant, Nash Motors, Division of Nash-Kelvinator Corporation, relies upon Acme equipment and material to handle its bulk packing problems.

Acme Shipping Specialists helped Nash engineers devise packing operations that materially reduced costs and facilitated movement and safe shipping of units between plants. (See the three examples of better shipping at lower cost on this page.)

Acme Shipping Specialists will be happy to consult with your company on specific or general problems of packing and shipping. They can help you, and without obligation.

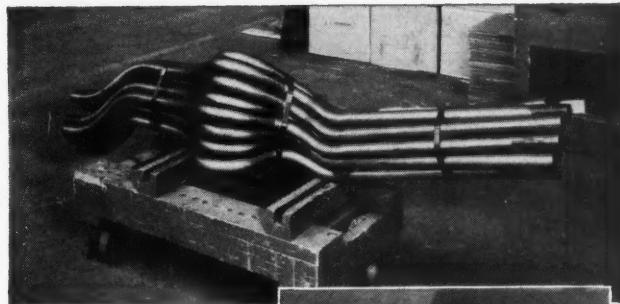
Find out how Acme Steelstrap users in many industries now show a *profit* in their shipping rooms. Send for free case history booklet, "SAVINGS IN SHIPPING."



NEW! More savings ahead with *Acme No. 3 Steelstrapper* —the lightest tool made. Magazine holds 100 seals. Tensioners, seals, and cuts the strap in one operation. Small base requires only 5-inch strapping surface. Two levers working in opposite directions make for excellent balance and easy handling.

Acme Steelstrap

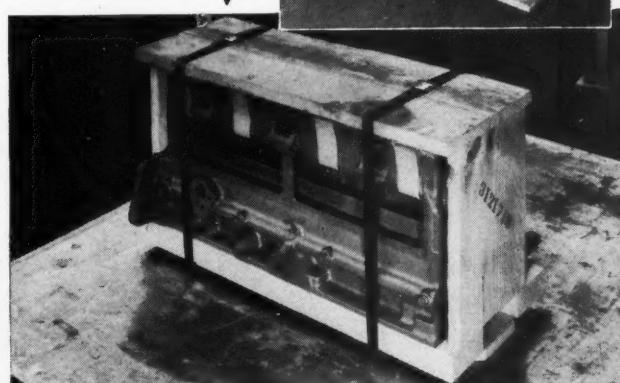
NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11



▲ **50% SAVED!** Acme Uni-Pak, in which a bundle of tailpipes is wrapped with three bands of Acme Steelstrap, reduced packaging costs about 50%.

BETTER! Acme Steelstrap holds wood members in place and helps protect breather pipes. Steelstrap and two short pieces of strip steel firmly hold engine to skid.

▼ **75% SAVED!** Present cost of packaging Nash engine cylinder blocks with Acme Steelstrap is only 25% of old method . . . labor and material saved!



MAIL THIS COUPON TODAY!

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Please send me a copy of your case history booklet,
"SAVINGS IN SHIPPING."

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Company.....

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City..... Zone..... State.....



ACME STEEL CO.
CHICAGO

Now 9 = 45!

By WILLIAM W. HILLER

Transportation Foreman
Oliver Iron & Steel Corp.
Pittsburgh, Pennsylvania

The experience of Oliver Iron & Steel with its pallet program suggests solutions for other companies which have similar problems. Now 45 kegs are stacked in space where previously only nine kegs were stored.

LIKE many other manufacturers, Oliver Iron & Steel found the immediate postwar period producing extraordinary demands on warehouse space. As in most plants, shipping warehouses are built just large enough to accommodate the flow of orders that are ready for shipment and offer a minimum of space for storage of any kind.

During the war, even though production was at a new peak, the flow of shipments was never allowed to be stymied by car shortages or other difficulties. Consequently, despite the huge volume, facilities at Oliver proved to be adequate even though we used hand stacking methods.

Not so in the postwar era, how-

ever. Long awaited new manufacturing facilities started to produce, and the demands of the world for steel fasteners and pole line hardware were so tremendous that production started to pile into the shipping warehouse at a rate never before experienced. This situation was aggravated by a series of shipping delays resulting

TWO-LANE SPIRAL ROLLER conveyor is three stories high. See Mechanically Speaking section, page 40.



from freight car shortages, embargoes, hold orders due to strikes in customers' plants and a long line of similar ills. These backed up products in the shipping warehouse and loading docks as never before.

Many Aspects Are Considered

The difficulty was brought to the management's attention and many solutions were considered. New and larger buildings and moving and re-arranging production machinery in bays adjacent to the present shipping warehouse areas were considered. This entailed disturbing production lines and departmental set-ups which in turn gave cause for doubt.

The problem finally crystallized itself thus: What can be done *without* adding appreciably to distribution costs and without disturbing other departments? The obvious answer at that point was to use the present space more efficiently—and that meant stacking high by use of the pallet-fork-truck method.

Palletizing with the aid of high lift fork trucks had been used by us during the war to some extent to handle certain shipments. This had proved very practical.

The final deciding point was a survey of the ceiling heights in our warehouse space. The result showed that by utilizing the high overhead areas, capacity could be at least doubled.

A number of other circumstances, however, made the problem at Oliver Iron & Steel peculiar. From the package standpoint, Oliver bolts, nuts, various types of pole line hardware and automotive and railroad specialties were ideally suited to handling on pallets as the entire line was prepared for shipment in either kegs or wooden boxes. These products are weighed or counted and packaged in a number of places throughout the plant on any and all of several different



PALLETIZATION PROGRAM in Oliver shipping warehouse has tripled the available floor area.

ZINC INCOTS ARE BOTH—load bearers and raw material. Article gives steel banding details and advantages.



★ One BAKER TRUCK has handled OVER 4,000,000 TONS OF STEEL



Baker Ram Truck, 25 years old, handling 6600 lbs. of coiled strip—with operator who has been on the job as long as the truck.

On February 13, 1923, the first ram truck ever built for handling coiled strip went into service for a large steel mill in Ohio. Since then, this Baker Truck has been operating continuously—usually 24 hours per day. For 25 years it has been on the same job, taking coiled steel from the hot strip mill to storage. As of January 1, 1948, this truck had handled 4,080,297 tons of steel and is still going strong!

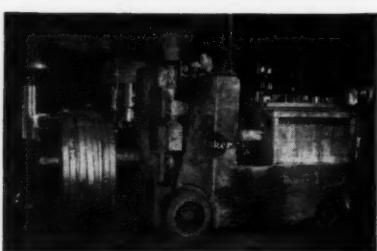
This truck, the forerunner of modern

Two Baker Ram Trucks taking steel from end of hot strip mill. Original truck in foreground. Loads exceed 6000 lbs.



Fork, Ram and Hy-Lift Trucks, performed so well that five more like it were purchased during the next two years. These, too, have given continuous service—24 hours per day—and are still on the identical jobs for which they were purchased a quarter of a century ago. It is conservatively estimated that these six trucks have handled a total of over 16,000,000 tons of steel—averaging only about one day per month out of service for maintenance.

Let a Baker Material Handling Engineer demonstrate how records like this can be made in your plant.



More recently this mill has purchased several modern Baker Ram trucks—like this 12,000 lb. model handling coils from end of welding line.

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Co.
2185 West 25th Street • Cleveland 13, Ohio
In Canada: Railway and Power Engineering Corporation, Limited

Baker INDUSTRIAL TRUCKS

Mechanically Speaking

The gravity conveyor consists of two spiral roller chutes which operate independently one within the other. One spiral extends from the third to the first floors of the building and discharges on the first floor only. However, entrance for additional loading is provided on the second floor, which permits material from either the third or second floor to be conveyed to the first floor. In other words, this differs from the first spiral in that discharge is permitted on the second floor while the first spiral only permits loading of additional material in the second floor level. Loading entrance levels are 3" high from the factory floor, which permits kegs to be slid onto the rollers from regular hand trucks. Kegs ride on end. Boxes are tipped onto the rollers from hand trucks and may ride on their sides.

The discharge levels are 20" high from the factory floor, for hand tipping kegs or boxes onto pallets or to tip a single keg onto a hand truck and roll a second keg on top for double height hauling or storing. Maximum weight of package prescribed for these chutes is 250 lbs. From the standpoint of safety, current practice has been to lay steel plates with sharp turns at each end down over a series of rollers in such a way that boxes or kegs must slide over the plates rather than the rollers which the plate covers, thus providing a friction brake to the unit in travel. Varying lengths of plate and number required can be adjusted to suit the circumstances.

floor levels.

The first step was to be certain that *any* new transportation and storage method we adopted would accommodate this condition. Nothing could better suit such a situation than mechanical lift trucks capable of running "lifts" of products from one end of a floor to the other.

Two-Lane Spiral Conveyor

At a central point directly off the main shipping warehouse a large spiral gravity conveyor had been installed which carries the packaged products from any of the floor levels directly to the warehouse. The lift trucks are employed to rush the finished products to the conveyor. Details on the spiral conveyor are given in the Mechanically Speaking section of this article. In the warehouse, the kegs or boxes are placed on wooden pallets, and then a lift truck takes over again. If carload orders are being assembled, the lift trucks pile the pallet units in high stacks in any suitable part of the warehouse.

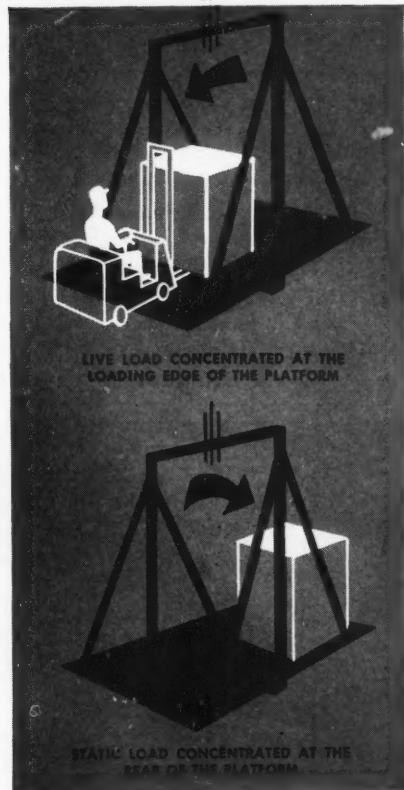
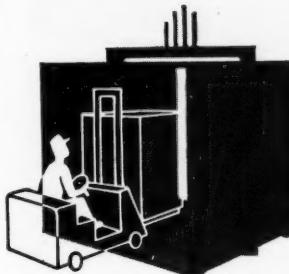
The advantage is that in a floor space formerly consumed by nine kegs, as many as 45 kegs can now be stacked. By the old hand methods one keg, or at the most two, could be moved at one time by a man. Stacking two high was about as much as any man could achieve.

With fork trucks handling palletized kegs, often two pallets containing a total of up to 18 kegs can be moved rapidly to any point and piled as high as 12 feet from the floor. It was expected that warehouse capacity would be doubled by palletizing, but you can see from these figures that the capacity is actually three times as great or more.

The lift trucks serve a thousand uses in addition to increasing warehouse utility at Oliver. Loading docks are door high, which permits the lift trucks to run directly into box cars with palletized loads for shipment. The same is true of incoming shipments which must be unloaded.

(Turn to page 49)

250%
more
'tilt'



ON POWER TRUCK FREIGHT ELEVATORS. Let's watch the 'tilting' action as a power truck loads a freight elevator. A power truck may weigh 8,000 pounds, or more, plus its proportionately heavy pay load. It suddenly concentrates its total weight at the front of elevator; then its pay load at the rear. It tends to 'tilt' the entire elevator structure forward; then backwards—as it loads off-balance. It sets up forces that exceed those of hand truck loading, by as much as 250%.

Obviously, power truck freight elevators must be specifically designed—to withstand the 'punishment' of off-balance loading. That's one of several good reasons why you should change your thinking about freight elevators when you change from hand truck to power truck loading.

FREE! OTIS Bulletin B-705F explains what happens when a power truck 'punishes' a freight elevator with off-balance loading . . . impact loading . . . and extra static loading. It shows how OTIS Pow-R-Truck Freight Elevators, with lifting capacities from 8,000 to 20,000 pounds and over, meet these severe stresses. And it also gives platform dimensions and hoistway requirements. Write for your copy. **OTIS Elevator Company, 260 Eleventh Avenue, New York 1, N. Y.**



**STANDARDIZED
POW-R-TRUCK ELEVATORS**

DESIGNED TO TAKE POWER TRUCK 'PUNISHMENT'

CONVEYOR SAFETY . . . (Continued from page 25)

that loading and unloading points must be kept clear of obstructions; and that no one except an authorized maintenance man shall lubricate or service a conveyor.

Most conveyors are installed in a fixed position and therefore can be more readily equipped with guards to prevent injury to personnel working or passing in the vicinity. The code covers all practical guards

of this nature and also provides for protection to the maintenance man when working on the conveyor. The code provides simple but effective means to prevent a powered conveyor from being operated by anyone other than the maintenance man while he is working on the conveyor.

In some types of conveyors there are moving cars or buckets, as in the aerial cableway. In these cases it is more difficult to provide practical and adequate safety devices

and it is for this reason that the code devotes more space to these types of conveyors than any other single type. The section dealing with aerial cableway, in addition to emphasizing construction requirements, gives specific instructions for safe operation and maintenance, and inspection rules which insure thorough coverage to protect against defective equipment.

It is the committee's opinion that no requirement in the code will work a hardship on the manufacturer or the user. Only full cooperation between manufacturer and user will assure a workable code that provides maximum protection to all personnel associated with the operation of conveyors.

Conveyors, being a necessity in today's industrial and commercial life, are "here to stay." The need of a uniform set of regulations in the manufacture and use of conveyors is recognized and the new safety code will fill that need.

NEW LIGHT ON NEON SIGNS . . .

(Continued from page 32)

every manufacturing area was installed by means of H-section welded steel trusses. This network carries suspended loads at any point along their length. Location of the glass room immediately adjacent to assembly operations assures uninterrupted movement of glass tubing into the production line for finish installation.

Two 10-inch monorails, 16 feet apart, comprise the central conveyor system, which runs through the main bay the full 300-foot length of the building. A cross-over switch enables traffic to be transferred from one monorail to the other, as shown in the photos. A right-angle craneway in the painting department interlocks with the two main rails. Spanning the 80-foot width of the bay, it connects the spray booths and the baking oven, which face each other.

This craneway and a second unit interlock with auxiliary rails in the assembly and sheet metal depart-

ments, thereby allowing suspended displays to be sorted during assembly and on the shipping dock, expediting their movement to trucks. The rail arrangement enables one operator to roll signs on a hand operated trolley to any point in the shop.

With custom and multiple-unit production work going through on predetermined schedules, sign assembly proceeds down the center of the main bay, layout tables on the left and letter forming to the right. Electric stitch welding is employed almost entirely. Special custom work tables are placed at one side of the assembly line. With electrical wiring and transformer installation meshing with the metal work along the assembly line, displays ready for surface coating are then transferred via the cross crane to the paint department. Parts for porcelain enameling are shipped out for coating and re-enter the production line when returned.

The suspended displays enter twin spray booths, 10' x 14' x 25', each equipped with a water-wash system. Special overhead housings accommodate the monorails allowing a lowered ceiling for the glass-fronted lighting units.

From the spray booths, the displays are conveyed directly into a 7' x 19' x 24' oven for baked enamel. Forced drying speeds up multiple-coat painting. Two monorails extending into the oven increase baking capacity.

Returned to the main assembly line, the displays move into the final assembly area, where tubing is installed, final electrical work completed, tube testing done and final inspection made. While delivery of tubing from the glassroom to assembly is on a time schedule, multiple sign production requires temporary storage of large quantities of formed glass. These pieces are wired to light wooden carrier frames which are slid vertically into specially designed storage racks where they are quickly available as assembly requires them. These racks occupy a minimum of floor space and afford complete safety from breakage. Similar vertical

racks are used for storing outline work ready for shipping.

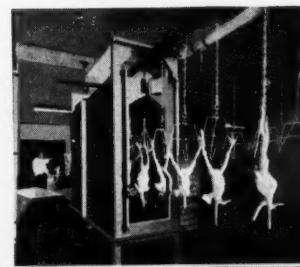
Loading Completely Mechanized

Extending to the loading dock on the outside of the building, the two main assembly monorails interlock at right angles with a 100-foot cantilever craneway running the length of the dock, which has a 10-truck capacity (with side clearance). Two hand-propelled cranes with power hoists operate on the craneway. The 10' x 17'6" loading dock doors are of the side-sliding type. All

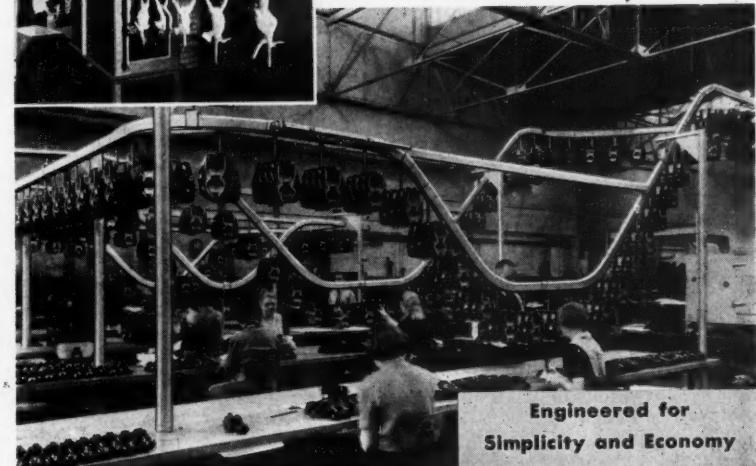
other main factory doors are roll-up types.

Crating is performed in an area adjacent to the loading dock. The service and erection department areas for layout and welding of sign structures are located here.

Suspended from the monorail system, the bulky assemblies "float" safely through the air. Hoist handling affords the shortest possible unloading time for raw materials, and physical effort has been virtually eliminated.



Turkeys or Telephones...



Engineered for
Simplicity and Economy

For handling efficiency and economy

recommend R-W Power Conveyors

Efficient, economical handling and movement of materials means lower production costs. Today, in all kinds of plants, Richards-Wilcox Conveying Equipment is solving this handling problem to perfection. The extreme flexibility of R-W ZIG-ZAG Conveyors makes them readily adaptable to the most complex plant layout.

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- Horizontal and vertical wheel units alternate in a continuous chain traveling through special steel tubing.
- Complete flexibility for installation in any plant. Easily installed, easily changed to conform to plant alterations.
- SAFE—all moving parts fully enclosed.
- Low first costs. Low power factor.
- Load capacity: Single suspension 65 lbs. per foot—double suspension 125 lbs. per foot.
- Standard horizontal or vertical curves—two-foot radius. (Stock load pendants including automatic turning units available.)

CASTERED TRUCKS AS COST REDUCERS

This paper won seventh prize of \$100 in the 1947 FLOW Cost Analysis Contest. The application of casters to stationary units provided the mobility needed for greater efficiency—and produced savings amounting to thousands of dollars. The 1948 Cost Analysis Contest is open. Your paper on a common-sense improvement may win one of the generous prizes. Write for your entry blank.

By WALTER EWEND
Material Handling Engineer
The Buda Co., Detroit, Mich.

THREE types of castered trucks which materially reduced material handling costs are presented

in this description.

The production of 9000 plows per month and the arrangement of the

plant did not warrant conveyors, but did necessitate a change in method of handling.

Example one: Photo 1A shows a stock handler transferring plow "J" beams from an "A" frame cooling rack to a skid, on which they were transferred by a low-lift truck

to shot blast and then to the machining department.

Photo 1B shows the operators placing a hot formed "J" beam onto the castered truck, which is both a

cooling rack and a transferring device.

The saving was \$202.00 per month, as explained in the tables below.

Old Method—1A

Press to rack .1518 minutes @ \$1.37 equals.	\$0.00347
Rack to skid .3588 minutes @ \$1.14 $\frac{1}{2}$ equals	\$0.00685
	—
Total	\$0.01032

New Method—1B

Press to truck .1242 minutes @ \$1.37 equals.	\$0.00284
Total savings per "J" Beam equals.....	\$0.00748
Savings per month equals 9000 plows X 2 "J" beams per plow X (\$0.00748 plus 50% overhead) equals	\$202.00

Example two: Photo 2A shows a stock handler transferring plow saddles from the metal cooling strips on the floor to a cradle skid on which they were transferred by a low-lift truck to shot blast and then to the machining department.

Photo 2B shows the operator

placing the saddles into the castered truck, which transfers them to the shot blast and is also a device for cooling. The shelves consist of a series of loose angle irons placed in inverted "V" positions, so that line contact and open spaces will speed up cooling.

At first, the superintendent was skeptical of the accurate cooling of the saddles. However, the saddles cool quicker and more accurately than they did with the old floor plate method.

The saving was \$112.00 per month, as explained below.

Old Method—2A

Press to floor .1656 minutes @ \$1.42 $\frac{1}{2}$ equals	\$0.00394
Floor to skid .1656 minutes @ \$1.42 $\frac{1}{2}$ equals	\$0.00316
	—
Total	\$0.0071

New Method—2B

Press to truck .124 minutes @ \$1.42 $\frac{1}{2}$ equals	\$0.00294
Total savings per saddle equals	\$0.00416
Savings per month equals 9000 plows X 2 saddles X (\$0.00416 plus 50% overhead equals	\$112.00

Example three: Photo 3A shows a stock handler transferring plow shares from a cooling rack to a skid box in which they were transferred to shot blast. The operator transferred them from the press to the cooling rack.

Photo 3B shows the operator transferring the shares directly

from the press into the combined transfer truck and cooling device. These trucks were also equipped with stacking lugs so that they could be stacked in storage on top of each other.

The saving was \$45.00 per month, as detailed below.

Three important points are es-

tablished by the foregoing data. 1. Handling procedures can be improved even when the volume does not warrant conveyors. 2. Castered trucks can be effective production aids when engineered to the product. 3. In this case, they also aided processing because they served as devices for cooling.



1a



1b



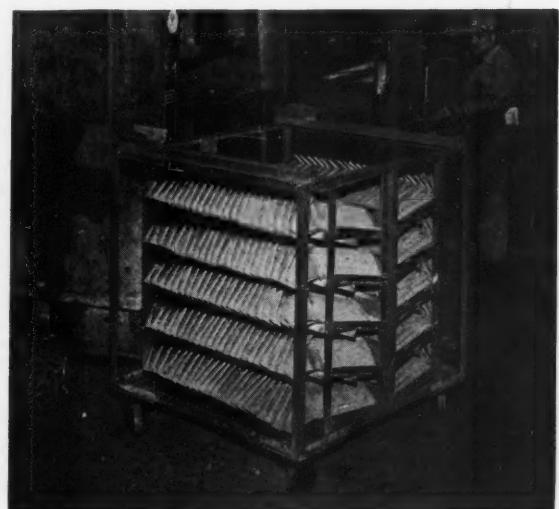
2a



2b



3a



3b

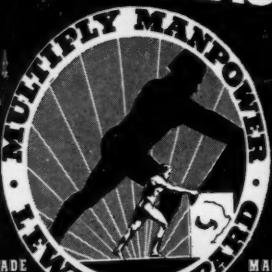
Old Method—3A

Press to stand	.069 minutes	@ \$1.42½
equals		\$0.00164
Stand to skid	.138 minutes	@ \$1.14½
equals		\$0.00264
<hr/>		
Total		\$0.00428

New Method—3B

Press to truck	.1104 minutes	@ \$1.42½
equals		\$0.0026
Total saving per share	equals	\$0.00168
Savings per month	equals	9000 plows X 2
shares X (\$0.00168 plus 50% overhead)	equals	\$45.00

LEWIS-SHEPARD



MATERIALS HANDLING EQUIPMENT

TRADE MARK

wheeled Materials Handling Equipment you can buy. Backed by 33 years' concentration in this field, these job-tested Lewis-Shepard products include . . . Electric and Gas Power Fork Trucks • Steel Bound Pallets • "JackLift" Electric Trucks • Hydraulic and Mechanical Hand Operated Lift Trucks • Skid Platforms • Hand and Electric Power Stackers • Storage Racks • Hand and Electric Power Cranes • General and Specific Purpose Hand Trucks.

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how to apply our 33 years
of experience to your business -- and make it pay off.
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CONSULT YOUR PHONE DIRECTORY



CUSTOM JOB BY CADILLAC . . .

(Continued from page 28)

the parts, $\frac{1}{2}$ " supports may reinforce the superstructure. The racks are arc welded to the base. In the event of a product or design change, the superstructure can be burned off and replaced with one of the new design desired. All racks are given a coat of gray paint when put into use.

Versatility in Rack Design

It may be well to point out some of the main features of the rack designs, which are actually built around the parts to be carried. Here is some detail on the rack used for the previously mentioned bumper parts—Figure 1. The longitudinal member in each slot can be clearly seen in the partly loaded rack. It will be remembered that this not only serves as the load-supporting surface but also as a valuable positioning device. Note that the complex bumper end is permitted to overhang outside the structure. The guard rail at each side of the skeleton dolly prevents contact with other objects, thus avoiding the possibility of damage. The same rack can be used for different component parts of bumpers similar in shape (there are three bars per bumper). Since the overhanging part does not have to be cradled within the structure, the benefit is one of simplicity of rack design.

Figure 2 is the rack used for the Cadillac hood ornament, a piece about 12" long and 2" wide, giving a total capacity of 480 items per rack. The supporting frame is of the usual $\frac{5}{16}$ " wire, but the individual hangers (two parallel wires between which the ornament is nested) are rubber-coated. The ends are left bare for welding to the supporting structure. This eliminates the need for rubber-coating the entire frame, yet satisfies the requirement for product protection. The decorations can be slid in and out on the rubber-coated supports without danger of marring them. Racks used for molding, strips about 48" long, are likewise placed

in rubber-covered holders.

Note, too, that no sharp edges are left bare, which applies to all racks used. The structures are built up minus sharp corners and all pieces rest at an angle. Thus every part is held in place by gravity, and no special locking devices are necessary.

The essential simplicity of the rack design, even when used for parts of irregular contour, is illustrated in Figure 3A. The individual piece, a bumper guard, is supported on the vertical member of the holder, and the hairpin loop extending in a horizontal plane prevents the part from swinging radially. Also see Figure 3B.

Another variation in design is shown in the rack used for headers for the radiator grille.—Figure 4. Each shelf is a skeleton drawer which is pulled out for convenient loading. The flat individual pieces are held in an upright position by clips. Note, again, that the drawers angle toward the center of the structure. It is interesting to observe that the introduction of a movable or sliding holder does not in any way change the basic simplicity of the design.

Adaptability to varied handling and product requirements is also brought out in Figure 5—the previously mentioned pallet-mounted rack. The individual castings shipped on this unit weigh 25 pounds, with a rack capacity of 70 castings.

Figure 6 shows the design used for wheel disks, which are by comparison with some of the other parts mentioned, of fairly even contour. Fifteen slots high by five slots long by two wide, this rack holds 150 pieces. Note the orderliness afforded by this trailer-mounted work carrier, which supports each disk on two parallel holders sloping from the outer supporting frame to the center of the structure. One can see that each piece is held in place *securely*.

Gives 13 Specific Advantages

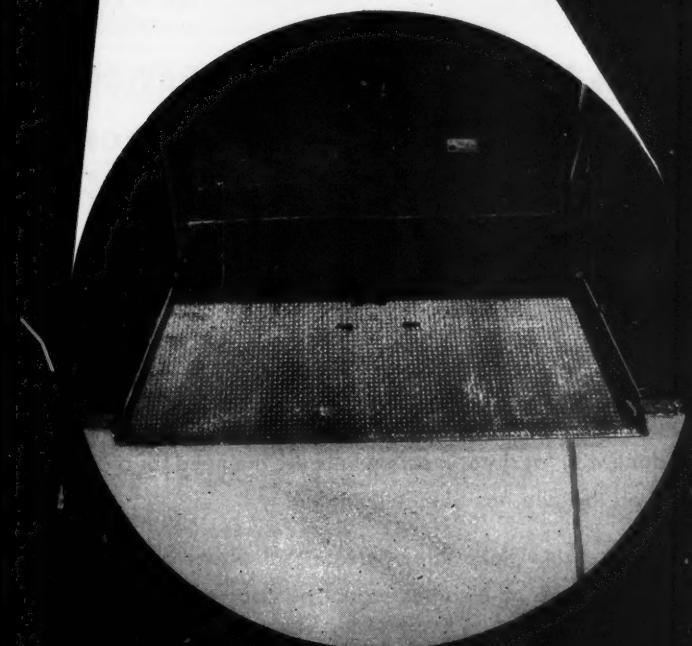
The few examples cited are typical of the wire racks which have been adapted by Cadillac on an increasing scale starting about 12

PENCO

HEAVY DUTY BRIDGE RAMP



Engineering bulletin
#470-F available on
request

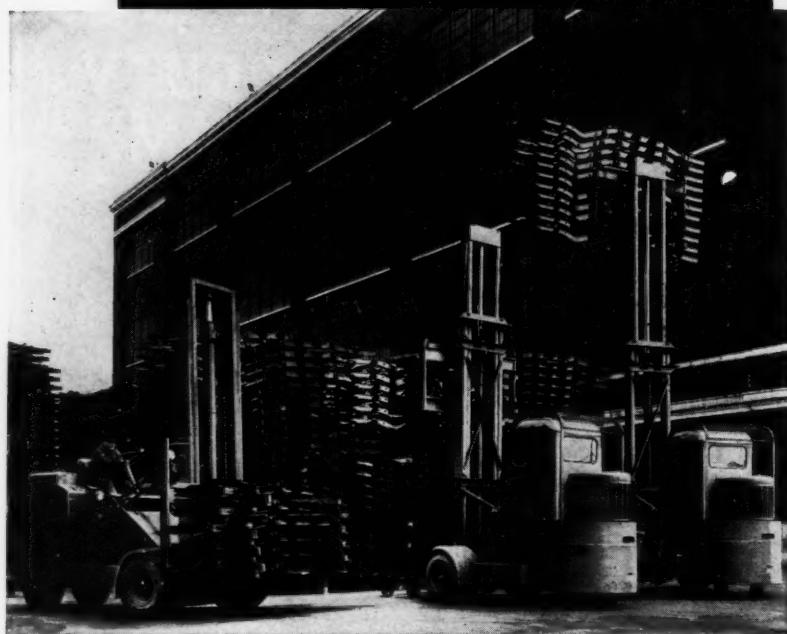


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ROSS

HEAVY DUTY LIFT TRUCKS



chosen by A. O. SMITH CORPORATION, nationally known manufacturer, to handle automobile frames

Cost of handling automobile frames has been drastically reduced since installation of ROSS Lift Trucks at A. O. Smith Corporation, Milwaukee, Wisconsin. Formerly handled singly, one man and a ROSS Lift Truck now handle and stack the bulky frames in unit loads of six or more at a time! And the job is done with far greater safety because the need for cable-riggers on the pile has been eliminated.

Hydraulic steering makes the operator's job easier and pneumatic tires assure all-weather indoor-outdoor operation.

ROSS Lift Trucks can simplify your handling problems and reduce your costs even as they have done for A. O. Smith Corporation. Get all the facts.

Rely On
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THE ROSS CARRIER CO.

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Direct Factory Branches and Distributors Throughout the World

months ago. It will have been noted that one common type of rack is used for items in each category through the various steps of the cycle—polishing, buffing, plating, inspection, and thence to the widely scattered points of use (including destinations outside).

A review of specific advantages of these special-purpose carriers the following points. 1. Positive protection of plated surfaces. 2. Improved housekeeping. 3. Better floor space utilization because parts are stacked high in each rack; and caster-mounted units can maneuver easily in aisles. 4. Convenient loading and unloading takes less time than formerly. 5. Visibility and accessibility of parts contributes to better handling practices. 6. Maintenance is practically nil, which used to be a problem with wooden carriers. 7. From an investment standpoint, the wire racks are less expensive than comparable wooden structures. 8. The open wire structure precludes any accumulation of dirt or metal particles. 9. Simplified inventory control. 10. No other department is tempted to borrow the special-purpose racks. 11. Their lighter weight (as compared with wood) makes for easy manipulation in a close layout. 12. Different types of mountings provide versatility. 13. Parts can be inspected in the rack which eliminates handling.

We are satisfied that a $\frac{5}{16}$ " wire can carry a one-ton load—and maintain the quality of these items in a manner required by Cadillac standards.

(This is the first of two articles on operations and methods at the Cadillac Motor Car Division.—Ed.)

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GEMAR ASSOCIATES
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NOW 9-45

(Continued from page 41)

They also make up a speedy distribution system throughout the many floors and levels of the plant for movement of supplies as well as finished products. The original consideration of taking storage space in parts of other departments has been realized because the pallet-fork-truck method made it possible.

In this way, any waste areas within reasonable distance of the shipping warehouse, no matter how small, can be utilized to stack products or supplies.

Zinc Pallets

One development of special interest in our power handling program is zinc pallets, which are raw material and load carriers at the same time. The zinc pallets, shown in a photograph, are individually 18" long, 16" wide and 5" high to the load deck. Two such pallets, made of the same material as zinc ingots, weighing 96 lbs. each, are used side-by-side. Forty-eight slabs of zinc each weighing 55 lbs. are stacked on this load bearing surface and securely strapped lengthwise with $\frac{3}{4}$ " x .035" steel banding. Each lift weighs approximately 2800 to 3000 lbs. When loaded in box cars for shipment, groups of such palletized lifts are banded together with 1-1/4" x .035" steel straps to prevent shifting in transit. In addition to the efficiency of this method which frequently saves from five to six man-days in unloading a carload of this material, it is interesting to note that since the pallets are of the same material as the load, it is possible for the entire lift to be melted and used. This, we believe, is a new kind of disposable pallet.

Operators at Oliver Iron & Steel accepted the pallet fork truck method as a matter of course. A little educational work, done through various department foremen on efficient and safe methods, will usually solve this problem.

PRODUCTION MACHINERY..



Part of a "loop" of Logan Roller Conveyor which serves a series of operations in the making of automobile tires. In this view tire molds are moved by conveyor to and from beater stations alongside the conveyor run. Hoists handle molds into beaters and return to conveyor.

..not just auxiliary equipment

TO LIFT production well above the level of "average" efficiency, more and more modern industrial plants are recognizing Logan Conveyors as an integral part of production equipment.

For Logan Conveyors enable materials and sub-assemblies to reach work stations on schedule . . . and to move to successive operations with proper timing . . . all at convenient working heights. In this way conveyors have proved themselves to be "part of the process."

It is probable that your plant output can be stepped up at one or more stages with well-planned conveying equipment. Literature sent on request.



Logan Conveyors

LOGAN CO., INC., 558 CABEL ST., LOUISVILLE 6, KY.

LARGE AND SMALL capacity units cooperate in removing finished material and providing empty bolsters at final inspection. Arriving material keeps flowing even when overhead crane is too busy to remove earlier loads.

**STRADDLE TRUCKS
BRIDGE CRANES
CHAIN SLINGS**

By **FRANK C. WIER**

Material Handling Supervisor
Steel and Tube Division

The Timken Roller Bearing Co.,
Canton, Ohio



STRADDLE TRUCKS IN A STEEL MILL (PART II)

In this concluding part the author analyzes straddle truck operations within plant buildings. See list of benefits on facing page.

IN THE particular system under discussion, the office of the general plant storage yard is used for dispatching straddle trucks. The various departments desiring service contact this office by telephone. Their telephoned requirements are recorded in such a manner that a general picture can be formulated to gain the following ends:

1. To move first the material that is most urgently required.
2. To work out the greatest number of two-way load hauls.
3. To enable the dispatcher to have the choices necessary to absorb the

extreme irregularity of the flow of material.

4. To achieve the greatest amount of work from a given number of straddle trucks.

Adapting Methods to Equipment

The straddle truck method of handling material in this plant was conceived to allow the material ahead of the Finishing Departments

to be handled and stored outside of the finishing buildings. Other functions of the system were added from time to time. Originally a yard location was decided on, adjacent to the general plant storage yard, so that the unloading of the material from railroad cars coming from the Canton Plant could be done by the general yard locomotive cranes, without the cranes leav-



SMALL STRADDLE TRUCK is used for transferring material from one crane runway to another inside main group of finishing buildings. The resultant coordination between trucks and cranes speeds the flow of the material.

HOW TIMKEN LISTS BENEFITS OF NEW METHOD

1. Increased Efficiency Over Use of Railroad Cars.

Probably the poorest utilization of railroad cars occurs where a carload of material per day is the required movement. In this case, it is customary to use 3 cars to move 50 tons of material (one at the loading station, one loaded car in transit, and one at the unloading station). When the car at the loading station is loaded, the engine brings an empty so that it may be placed for the next loading without the necessity of an extra switch. When a car at the unloading station is unloaded, the engine needs to have a loaded car to set in to avoid an extra switch. From this, it is obvious that the cars stand a great deal of time waiting for loading and unloading. A similar movement of the same amount of material can be accomplished with the use of 13 inexpensive bolsters in a similar cycle by straddle truck.

2. Better Utilization of Overhead Cranes.

As related to overhead crane usage a railroad car or a straddle truck bolster is very desirable as compared to a conventional truck. In the case of the railroad car or the straddle truck bolster, either one can wait for the overhead crane to serve the important production machines with

no loss except the usage of the car or bolster. In the case of the conventional truck, the locomotion power is an integral part of the truck, and the operator of the truck has nothing to do until the crane is available. To achieve an efficient operation, it is necessary to synchronize the arrival of the truck and crane at a given point at a given time. This seldom happens because machine operation is of first importance, so the truck and driver have to wait. In the case of the railroad car and the bolster, the bolster's capacity is approximately 1/6 of a carload, whereas the cost relationship is 1 to 50 in favor of the bolster. By the use of the straddle truck bolster, we achieve the greatest crane utilization at the lowest investment.

3. Improved Flow of Material.

Our former railroad car system of moving material in bales required first the placing of an empty car. This car was loaded as the bales were finished. All of the bales in the car except the last one were immobilized for varying periods of time until the last bale was placed and the car made ready to move. Strictly speaking, the material was in inventory waiting for movement. Upon unloading the car, the reverse procedure took place with the same inventory result. Due to the necessi-

ties of the best railroading practice, the material remained standing in the railroad yards for varying periods of time. This added further to the inventory accumulation.

By the straddle truck method all movement is by bale, and not by an accumulated carload of bales; therefore, more bales of material can be produced in a given period of time with a great deal less inventory of semi-finished material in the plant. Also, the uninterrupted flow of material by bale facilitates the production control of all operations, thereby bringing about a better overall producing condition.

4. Eliminates Material Handling Confusion and Congestion in an Operating Department.

5. Flexibility of Method.

In the operation of a tube and bar finishing mill, handling the many types and sizes of stock that occur in our plant, the need for flexibility is of greatest importance. The straddle truck system of handling material provides this flexibility. It can relieve any peak load or correct any shortage of material at any point at any time. In addition, it makes it possible to place any amount of material in outside storage for a varying length of time. This flexibility of movement has definitely increased the production of the plants.



Heller Tin Compress Corp. cuts handling time 2/3 with modern Lorain crane

"CRANEPOWER" pays off daily at the Heller Tin Compress Corp., Peoria, Ill. With this Lorain-41 on the job, time required for unloading scrap, feeding to boilers and loading out has been reduced two-thirds. "Farm scrap" is handled with orange peel bucket (as illustrated) while the heavier materials are lifted with a magnet. An average of 150 to 200 tons are handled daily.

Lorain cranes may be equipped with more than 15 different crane attachments — are available with crawler or rubber-tire mountings (single-engine and two-engine Moto-Crane types). For complete information, call or write your local Thew-Lorain distributor.

THE THEW SHOVEL COMPANY, Lorain, Ohio

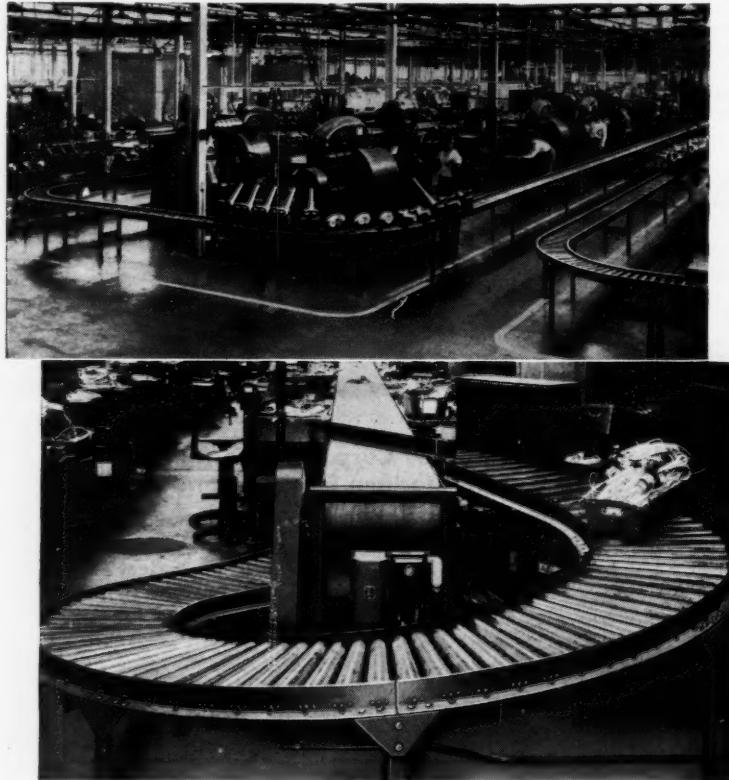
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LORAIN CRANE VS. MAN
HANDLING VS. HANDLING
SAVES MONEY

**CONVEYORS
LIKE THIS
WON'T
CUT YOUR COSTS**

Looking for a way to get material from one part of your plant to another . . . you wouldn't consider the burro as the best answer. The real answer to fast, economical material handling is Standard Conveyors—a system, a section or a portable powered unit. Standard Conveyors are built for almost every material handling need, from mail to malleable iron castings. Look over your shop or warehouse, there's more than an even chance you can save time, money and labor with a Standard Conveyor.

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ing their usual work area. In order to do this, the Finishing Department storage yard is located $\frac{1}{2}$ mile from the main Finishing Departments, and halfway between the main Finishing Departments and #2 Finishing Department building. Before the system proved itself, it would have been thought ridiculous to place the material anywhere except immediately outside the door of the building in which it was to be ultimately used. The distance involved has been found to be of little consequence as related to the efficiency gained by using the unloading equipment in its regular area. Reasonable distances mean very little when the material is in load units with no loading or unloading time required for its movement.

To meet Production Department schedules under the old system, the material on the bottom of the stock piles was often found to be scheduled for processing first. This con-



DIFFICULT HANDLING ELIMINATED. Various sizes and shapes of forging scrap are accumulated on pans, then hauled by truck to storage.

dition created an abnormal amount of stock handling which impeded the flow of material through the various finishing operations. The speed of producing material on the mills seldom corresponds to the speed of the finishing operations. The amount of material produced during a given mill rolling period very often is much greater than the

immediate finishing rate of that material. This created an excess stock pile condition in the finishing building, which further complicated the handling procedures.

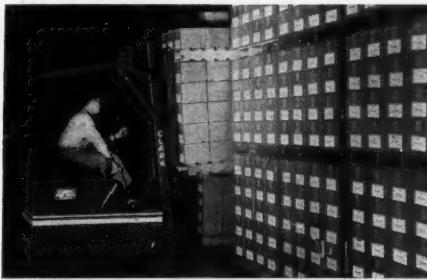
Avoiding a Serious Pitfall

An explanation of the irregularity of flow of material might be expressed by the following simulated condition. The first 100 bales might require only three operations; the next 100 bales might require 7 operations; the next 100 bales could require 15 operations; while the next series of bales might go back to only three operations. It is easily seen that with a given number of machines operating at a uniform production rate, a very irregular demand and flow of material would result. During the time the material is in process requiring only three operations, the maximum amount of material must be available.

Since the period of time required for 15-operation finishing is much longer due to repeat operations by the same machines, very little material is needed in the first operation so that the flow of material into the first operation almost stops. Under the old system it was at this time that the fast moving material arriving from the mills would completely overfill the inside storage areas. Under the old system nothing could be done about this except to muddle through. Because of this irregularity, the amount of material in the departments between certain operations becomes too great or too small; in which case, material under the present system is sent to the outside storage areas; or it is brought in from outside storage to keep certain machines from being idle.

By previous methods these railroad cars of material were unloaded by overhead crane inside the finishing building. This resulted in excess stock impeding the flow of material in the buildings, and at times, the inability to bring material into the buildings at all. This resulted in a condition where railroad cars were used for storage purposes, which in turn caused a breakdown of the transportation system service.

MATERIAL HANDLING News



Orderly tiering of palletized cartons to the ceiling or cold storage rooms is routine for the Elec-Clipper



Unloading material from a delivery truck with the Elec-Clipper cuts the truck's standing time, simplifies checking of shipments, speeds the movement of material



Hustling unit loads from the warehouse and quick assembly of shipments by means of the Elec-Clipper cut handling costs to the minimum

"King's size for usefulness, Pint-size in cost"

ELEC-CLIPPER

is the versatile electric battery-powered fork truck for that multitude of handling jobs defined as "loads up to 2,000 pounds"

Potent combination of versatile utility and attractively small cost, Clark's Elec-Clipper has done an exceptional job for industry in handling materials weighing up to a ton. In the many branches of the food industry, and particularly in wholesale distribution outlets; in foundries and metal working shops, automobile plants, railway storehouses and freight depots; in truckers' freight stations and warehouses of all kinds: in all these and many other varied installations, electric battery-powered Clark Clippers enjoy admiration and respect.

With 124-inch lift on the standard high-lift model, and over-all height of only 83 inches with forks lowered, the Elec-Clipper moves comfortably and safely under 7-foot clearances, and does high tiering with amazing ease.

Finally, it costs less—a clinching benefit: less in initial investment, less to maintain, less to operate—by testimony of delighted users. That benefit is a natural result of Clark's unrivaled automotive experience and of Clark's own quantity production of nearly all component parts. It's a better machine—husky, dependable, economical—because *Clark builds it.*

To get a wholly objective survey of materials handling operations and needs in your business, talk to a Clark field representative—a competent man whose recommendations are unbiased because *Clark builds both types of machine, gas-powered and electric battery-powered.* As basic "good business" **CONSULT CLARK.**

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



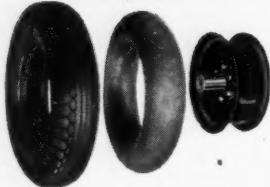
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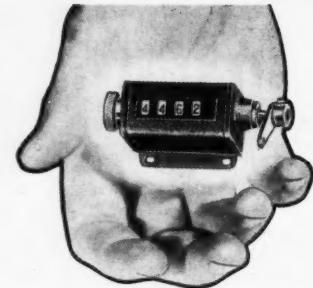
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It's tiny, but it's rugged . . . and precision built to give you years of service. The Model "Y" Productimeter is easily adaptable as an integral part of office machines, laboratory equipment, and various types of production machinery.

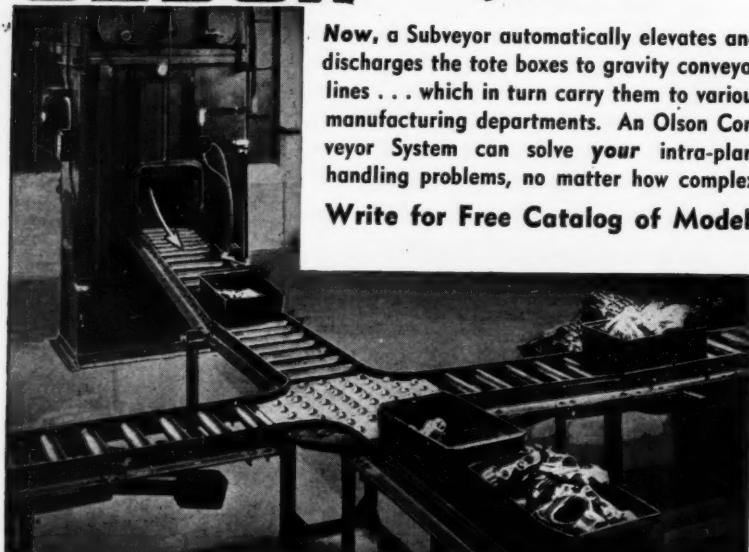
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Communications Aid Paper Work

The orders to the straddle truck drivers are conveyed by means of two-way radio. Mobile units installed on each straddle truck enabling the driver to talk to the dispatcher as well as to receive his orders. In this manner we are able to conduct what we would call an open system of control, that is, any unit can haul any load for any department to any destination at any time without any preconceived restrictive assignments. No truck is assigned to any particular department to do its particular work exclusively. Also, more than one truck can be put on any department's work at a particular time of urgency without preliminary planning. In this manner the maximum amount of work is performed by each straddle truck.

The placing and arranging of the material in the storage area is an important part of the handling system. As the material is unloaded from railroad cars by locomotive crane, it is placed on single bolsters to form load units. From previously ascertained knowledge supplied by the Production Department, the bolster loads are moved into the Finishing Departments or hauled across the road into the storage area. The storage area is laid out by means of signs into lettered rows, and numbered lay-down spots in a given row. A record is added to the railroad car manifest of the row letter and place number of each bale placed in the storage area. This manifest is sent with the straddle truck driver on completion of the car to the Finishing Department's material control man. This location is returned to the straddle truck dispatching office with the list of material to be delivered from the storage area to the Finishing Department.

The purpose of this paperwork is to make it possible for the straddle truck driver to pick up any given load in the yard area, without dismounting from his straddle truck to locate the material. All he needs is the row and the number. This paperwork is the only exception to the telephone method ordinarily

used to bring about the movement of material. In all material movement the bale identification tag is the only paperwork which travels with the material itself. Manifesting is done by the people sending the material, and the receiver of the material checks the material against the manifest, but in no case is the manifesting done on the single unit of material hauled.

The amount of stock in the yard at a given time varies directly with the irregularity of the flow of material through the Finishing Departments. It is not unusual for the yard to go from practically empty to well-filled and back to empty again in a two-week period.

In-Plant Operation. Maintenance

The application of the straddle truck method controlled by the Finishing Departments, instead of the Material Handling Department, functions inside the main group of Finishing Department buildings. It is a 12,000-lb. capacity unit, and is designed for inside use only. The function is to move bales of material from one crane runway to another between the various finishing operations. The individual moves are short but the occurrence is very frequent; as many as 300 movements in one eight-hour shift. A great deal of confusion and congestion resulted on a 20-foot wide runway under the old method. This was due partly because the pull type unit had to turn around at the end of each load, and partly due to the rapidity of the movement where multiple units were involved.

Under the present system, one straddle truck adequately serves all the various operations. There being only one operator involved, he has full opportunity to plan and execute his work. Since he does not have to turn around at any time, he can make as many as three or four loads a minute if necessary—the average move being approximately 75 feet.

Maintenance of the entire straddle truck system is simplified because we have equipment maintenance men on duty on a 24-hour basis for other similar equipment



High Costs Under Low Ceilings

When plant ceilings are low, material handling costs may skyrocket, especially if loads are heavy and movements frequent. If yours is a plant where there isn't headroom to install and operate a conventional type electric hoist, there's an answer to the problem—and a Shepard Niles engineer has it.

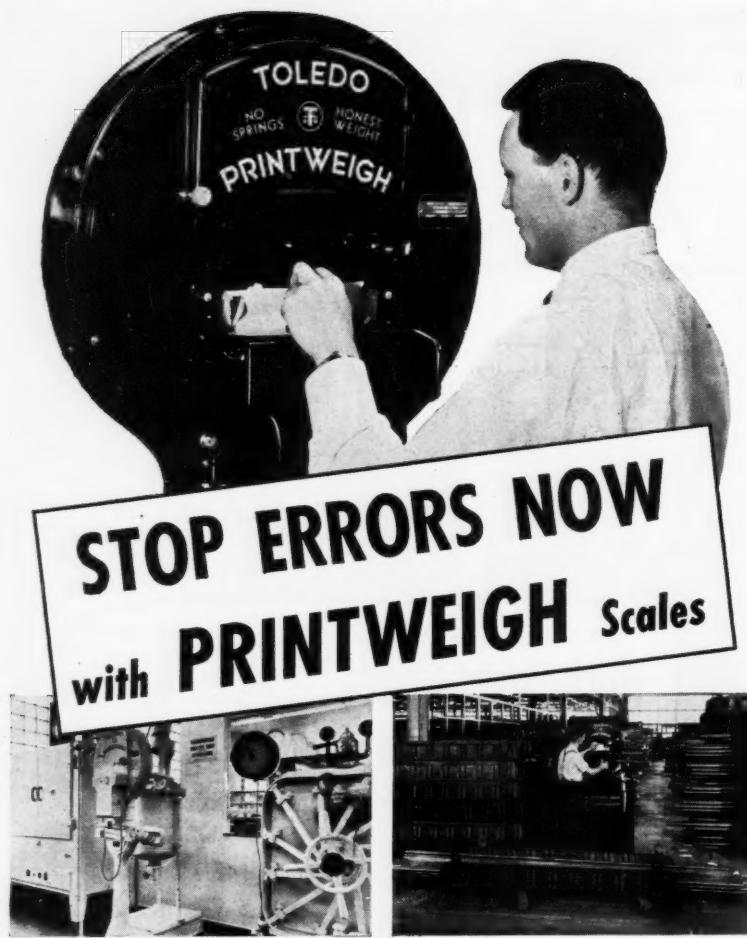
Show him what you lift and move. He's a trained, experienced man and from the multitude of sizes and types of electric hoists made by America's pioneer builder, he'll recommend the best type of close clearance hoist to do your job economically, smoothly and safely.

Every Shepard Niles hoist has sound design, rugged and precise construction and trouble-free operation built in. The "plus" you get with a Shepard Niles is the right style and installation for your own needs.

★ If your handling problem involves an overhead traveling crane instead of a hoist, Shepard Niles will suggest the right type. There's a Shepard Niles crane for every material-handling operation.

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New illustrated bulletin No. 2021 shows Better Ways to control costs.



purposes as well as straddle trucks. We have found in our operation of mobile equipment that maintenance and operation should come under the same general supervision and we have formed a special group for this work. Mobile equipment powered by internal combustion engines presents a different set of conditions from those encountered in normal maintenance work.

We should emphasize that certain conditions need to be present for the successful operation of the straddle truck system described above.

1. Sufficient outside storage space must be available.
2. The material must be formed into load units for handling by the straddle trucks.
3. Good roadways are required for travel.
4. Adequate width of lay-down space at points of origin and destination is required to facilitate interchange of loaded and empty bolsters.

It was not too difficult to provide these conditions.

3

THIRD ANNUAL
INDUSTRIAL
PACKAGING
and MATERIALS
HANDLING
EXPOSITION & FORUM



OCT.
5, 6,
7, '48

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CHICAGO

TOLEDO

HEADQUARTERS FOR SCALES

PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

CONTENTS

THIRD INDUSTRIAL PACKAGING And Material Handling Exposition.....	58
OYSTERS TRAVEL FAST—from boat to package. This handling system employs more than a half dozen different devices for routing the incoming raw oysters from the boat to the can. It's a speedy, sanitary operation that retains the flavor of the sea food.	60
SAFE FILLING OF A FLAMMABLE PRODUCT. The product is turpentine, which is filled in smaller containers for home use. The description covers all aspects pertaining to safety, production, prevention of corrosion of equipment.....	63

3 RD ANNUAL

Industrial Packaging

"This year's exposition area is 30% greater than the space used in our previous shows and reservations have been running far ahead of last year." This was stated by A. C. McGeath of the American Box Board Co., general chairman of the exposition. Eight to ten thousand visitors are expected to see approximately 100 exhibits showing the latest developments in packaging, packaging methods, and material handling equipment.

Exposition officials say that visitors will see many items of interest which have not been displayed in any previous shows. They include new storage racks and bins, new fibre board container designs and applications, the latest laminated protective papers, a recently developed marking machine for automatic imprinting of boxes, novel applications of fibre cans to automotive parts packaging, and a new can sealing machine. It is expected that the most recent in fork lift truck equipment will be ready for display at that time.

Protective Packaging Contest

The exposition will again feature a contest on protective packaging. Last year, some 60 entries were submitted by some of the country's leading packaging engineers. It is expected that the total number of participants in this year's contest will total more than 150. The present competition will be expanded from one general classification to five separate and distinct groups, which will cover all principal types of shipping container construction.

Three cash prizes will be awarded in each classification, together with a number of honorable mention certificates. First prize will be \$500, second prize \$50, and third prize \$25.

A further development in this competition will be a special "Export" award for packages specifically designed for this type of shipment. Chairman of the contest is A. L. Green of the Freight Claim Section, Association of American Railroads.

Short Course Offered

The exposition will also feature a "Short Course" on packaging and material handling, arranged and conducted under the auspices of the University of Illinois. It will open one day ahead of the exposition proper, and will consist of 11 sessions, ending October 7. The subject matter of the course has been developed from results of a survey recently conducted by the Industrial Packaging Engineers Association, producers of the show. The keynote of this course will be the Relationship Between Packaging, Material Handling, Transportation and Distribution.

Talks on material handling will include a review of principles and applications in receiving, distribution, and warehousing operations. There will also be discussions of technique in plant layout, and work simplification from a material handling viewpoint. Attention will also be given to material handling as applied to small business.

Highlighting the packaging program will be sessions on packaging in automotive and allied industries, packaging on production lines, closure methods and marking, and carloading, bracing and blocking. The usual review of the technique of fibreboard and wood packaging will also be held. A further discussion will be offered on loss and damage complaints.

Among those handling exposition arrangements, in addition to McGeath, are: C. J. Carney Jr., Industrial Packaging Engineers Association of America, managing director; J. H. Singer, Rathborne Hair & Ridgway Co., vice chairman, packaging section; Ray C. Sell, Koehring Co., chairman, transportation division; and Max A. Goodwin, Clark Equipment Co., vice chairman, material handling section.

Advance information indicates that the Third Annual Industrial Packaging and Material Handling Exposition promises to be one of the outstanding events of its kind. It is bound to be of value to all those responsible for reducing spiraling handling and packaging costs.

Industrial Packaging and Material Handling EXPOSITION



Third Annual Industrial Packaging and Material Handling Exposition, October 5 through 7, in Chicago, offers three outstanding features. 1. A comprehensive array of exhibits of the latest in packaging and material handling. 2. A greatly expanded protective packaging contest. 3. A "Short Course" on packaging and material handling, conducted by the University of Illinois.

This partial list of exhibitors does not include the names of companies which entered the Show late. Additional exhibitors took booth space after press-time. For your convenience, booth numbers are given for all companies listed. Use this spread as a guide for the Show, which features the latest in packaging, packaging methods and related material handling equipment.

Company	Booth No.	Company	Booth No.	Company	Booth No.
Acme Steel Company.....	134, 135	Gaylord Container Corp.	National Metal Edge Box Co.....	140
Acorn Wire & Iron Works.....	11, 12	General Box Co.....	131, 132, 133	Nox-Rust Chemical Corp.....	110
American Box Board Co....	121, 122	Gerrard Steel Strapping Co.....	7, 8	Nu-Way Sales Corp. of Illinois....	9
American Excelsior Corp.....	45	Gummed Products Co.....	127, 128	Powell Pressed Steel Co.....	47
Otis Angier & Associates....	101, 102	Hertner Electric Co.....	18	Packaging Parade.....	106
Associated Cooperage Industries of America, Inc.....	137	Hyster Co.	75, 76	Pack-Rite Machines.....	23
Automatic Transportation Co.	26, 27	Industrial Tape Corp.....	107	Rathborne Hair & Ridgway Co.	129, 130
Bonnell Publications	112	Inland Wire Products Co.....	19	Sefton Fibre Can Co.....	10
Brainard Steel Co.....	50, 51	Ironbound Box & Lumber Co....	3, 4	Sherman Paper Products Corp.	143, 144
C.T.C. Industries, Inc....	34, 35, 36	Jiffy Manufacturing Co.....	103	Shipping Management.....	109
Carry-Pack Co., Ltd.	152	Kimberly-Clark Corp.....	138	Signode Steel Strapping Co....	28, 29
Chicago Mill & Lumber Co.	123, 124	The Lanham Co.....	48	Stanley Works	104, 105
Clark Tructractor Div., Clark Equipment Co.	77	Laminite Products, Div. Critter- ion Paper Corp.....	20	Towmotor Corp.	30, 31, 32, 33
Container Co. Div., Continental Can Co.	25	Markham Machine Co.....	56, 57	Traffic Service Corp.....	120
Dravo Corp.	1	Marsh Stencil Machine Co.....	116	Vanant Products Inc.....	46
Dri-Flo, Inc.	142	Mid-States Container Corp.....	111	Watkins Patents, Inc.....	113
Thos. A. Edison, Inc.....	13, 14	Mid-States Gummed Paper Co....	119	Weber Addressing Machine Co....	74
FLOW Magazine.....	2	Modern Materials Handling.....	58	Wirebound Box Mfrs. Assn.	117, 118
Fibre Drum Mfrs. Assn.....	145	Modern Packaging.....	114	Wood Conversion Co.....	141
		Multistamp Co., Inc.....	108	Yale & Towne Mfg. Co....	15, 16, 17
		Nashua Package Sealing Co.....	54	N. A. Young Co.....	5, 6
		National Wooden Box Assn.	125, 126		

OYSTERS TRAVEL FAST - -

from boat to package

Oysters—from boat to package travel fast via: cleated belt conveyor, rubberized canvas belts, flanged-wheel transfer cars, a high-speed capper, castered trucks and dollies, jib hoists. Fast handling avoids spoilage, assures packing of a fresh product.

SPEED in material handling and packaging is always desirable, but in the shell fish industry it is a must because of the highly perishable nature of the products. Southern Shell Fish Co., Inc., of Harvey, La., is a packer of oysters, shrimps, and crab meat. To eliminate the possibility of spoilage, this company has developed techniques which have cut the "boat to package" time to a matter of minutes. This article describes the oyster packing phase of its business, which is typical of the techniques used generally.

600 Bushels In 2½ Hours

Oysters, dredged from cultivated beds in the lakes, bays, and bayous of the Mississippi River Delta, are delivered to the packing plant in loads averaging from 600 to 1000 bushels per boat. The boat docks at a slip at the rear of the plant. Here is a semi-portable cleated belt conveyor, mounted on a swivel pin at one end and suspended from a revolving jib-mounted chain hoist at the other. This conveyor is swung out over the deck and lowered into the hatch (see photo). Operators shovel the oysters on the 14" x 16' belt, which is powered by an electric motor at the head end. The average 600-bushel cargo is unloaded with the aid of this equipment in 2½ hours. As the oysters are discharged from the belt, they drop onto a 50-foot rubberized canvas belt conveyor. This conveyor inclines 12 degrees to elevate the material for discharge into a revolving cylindrical pressure washer, where it is tumbled and washed to remove dirt and other foreign particles.

The oysters then drop onto a wire mesh conveyor which drains off the water and transfers them to another cleated belt via a chute. The latter belt elevates the oysters to the second floor for loading into flanged-wheel cars. A chute at right angles to the belt directs the material into these carriers. The cars are of slatted steel construction with six-inch roller bearings. They are eight feet long by two feet wide by two feet high, and operate on rails spaced on 24" centers. The empty cars are fed to the loading station from the left and when filled, are pushed onto a transfer car. In this manner they are moved laterally to the loading line on one of two tracks leading into the shucking plant. The use of these transfer cars permits the reversal of flow of material.

Disposal Belts, Wire Baskets

The tracks lead into steam boxes, each with a capacity of three loaded cars. To open the shells, the doors of the charged boxes are sealed and steamed with 15 lbs. of pressure for five minutes. The cars then pass into the shucking room, where another transfer car is available to move the loads from the two steam box tracks to the four shucking tracks. Each of the four tracks holds six cars, which are spaced about six feet apart to allow sufficient room for the workers. The shucked oysters are placed in round stainless steel baskets. The shells are dropped into pits beneath the tracks, whence they pass onto belt conveyors which deposit them into a motor truck loading hopper. The shells are subsequently used for road building and fill work. The

empty cars in the shucking room are removed by another transfer car at the extreme end of the room, and shifted back to the loading station via a switch track.

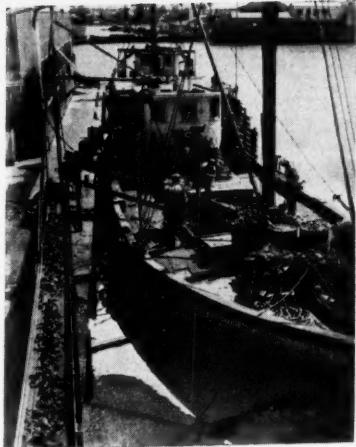
The oysters are dumped into the first of two settling tanks, one of which is slightly higher than the other. The shell particles sink to the bottom, while the meat floats on a stream of water that overflows from the high to the low tank. From the second tank the oysters are floated down a flume to the packaging building, approximately 250 feet away. The flume discharges the oysters into another settling tank from which they pass to a drain table where an inspector culls them and places the perfect ones into expanded metal trays. The loaded trays are placed on a castered truck for delivery to the nearby packing line.

Team Work In Packing. Weight Control

The material is here transferred to stainless steel pans. The packing line is a double sided stainless steel table with two narrow belts running down the center. Above the belts are two can chutes, shown, which deliver the empty cans from the second floor storage rooms. This set-up permits packaging on both sides of the table when needed, with the cans equally accessible to operators on each side of the line. Because oysters are irregular in size and are canned on a dry weight basis, it is expedient to hand pack them. Two packers work together for greatest efficiency.

One removes the empty cans from the chute and scoops up the approximate quantity of oysters,

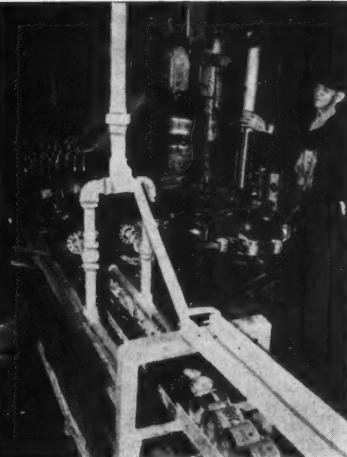
PACKAGING MECHANICS SECTION



◀ 1

1 SEMI-PORTABLE CLEATED belt conveyor suspended from a rotating jib unloads oysters from boat.

5 ▶



2 BELT LOADS cars via deflector chute. Note loaded car being transferred to another track.

3 EXPANDED METAL TRAYS resting on four-wheel trucks hold shucked oysters during draining.

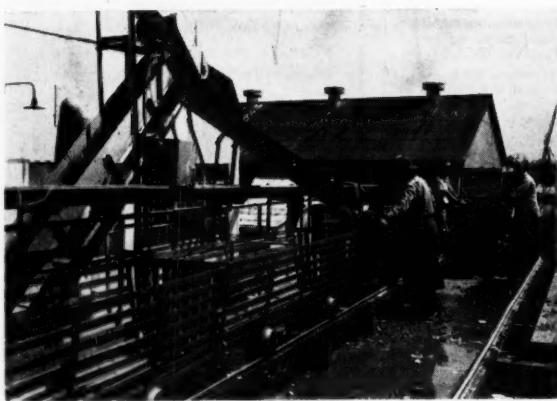
4 LOADING AND WEIGHING cans. Empty cans are on chutes above table, loaded ones on table belt.

5 CAPPING MACHINE is used to place lids on cans. Note brine filler in foreground.

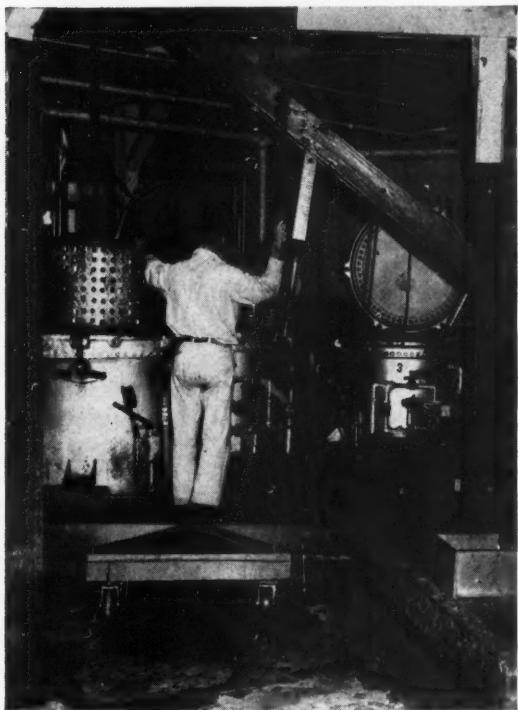
6 REVOLVING JIB HOIST places basket into retort kettles. Triangular dolly used to move baskets.

7 LABELS BEING APPLIED to cans. Booster conveyor discharges onto gravity wheel conveyor.

2 ▼



▼ 6



▲ 3



4 ▲

7 ▶



PACKAGING MECHANICS SECTION

while the second places the loaded can on a balance-type scale and adds or deducts to arrive at the correct weight. The loaded cans are then placed on the belt which feeds them into the capper.

The traveling cans pass below a brine filler which adds the proper amount into each unit. The filler is a pipe with perforations at the bottom through which the brine drips. A valve controls the speed of the flow and is regulated to synchronize with the speed of the conveyor belt, thus insuring the proper amount of brine to each can. Immediately following, the cans are deflected from the belt into the capping machine. This machine is a four-head rotary type which runs at a maximum rate of 125 per minute. It is equipped with a counter for tabulating daily production.

From the accumulating table at the capping machine discharge the

(Turn to page 64)

Special Equipment

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Designed and built to your specific needs, Fab-Weld all-steel equipment means top economy, strength and durability. Trucks, dump hoppers, skids, racks and bin boxes are examples of Fab-Weld geared-to-the-job engineering.

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DRIVE
HANSEN
TACKERS

IT'S no trick with Hansen, with its *Balanced Drive*, to tack more labels or tags or line more boxes, in less time, with minimum effort, and keep shipments on the go.

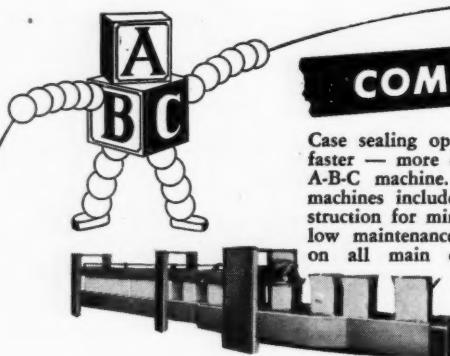
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COMPLETE LINE OF CASE SEALERS



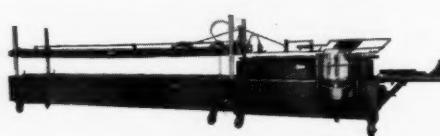
A-B-C AUTOMATIC TOP & BOTTOM CASE SEALER — Automatically glues, folds and seals either or both top and bottom flaps of cases in one operation.

Case sealing operations can be done faster — more economically with an A-B-C machine. Features of A-B-C machines include simple, sturdy construction for minimum down time — low maintenance cost; ball bearings on all main drives; geared head

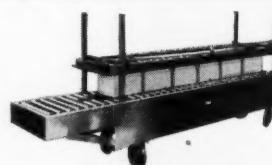
motors. A-B-C specializes in building packaging machinery exclusively. Take the "hand" out of handling. Let an A-B-C specialist help solve your case sealing problems. For details write A-B-C PACKAGING MACHINE CORP., Dept. F7, Moberly, Missouri.



A-B-C AUTOMATIC SIDE SEALER — Automatically glues, folds and seals either or both ends of cases too long and narrow to be accommodated in an upright position.



A-B-C SEMI-AUTOMATIC BOTTOM CASE SEALER — Seals bottom flaps in one operation. Handles empty cases with partitions in place. Speeds up to 15 cases per minute.



A-B-C HAND GLUER — A motor-driven compression unit for the setting of hand glued cases. Automatic starting and stopping switch. Easily portable.

A-B-C

PACKAGING MACHINE CORP.

MOBERLY,

MISSOURI

OTHER A-B-C PRODUCTS

Automatic Top Sealer • Automatic Side Sealer • Semi-Automatic Bottom Sealer; Hand Gluer • Glass Container Case Packer

SAFE FILLING OF A Flammable Product

PACKAGING
MECHANICS SECTION

Inflammability, spillage and evaporation are problems of turpentine packaging. How a producer of this product devised methods for filling turpentine in containers suitable for the household.

THE gathering, processing and distribution of resin, and one of its chief derivatives, turpentine, has



FILLING EIGHT QUART cans simultaneously. Note cans making 90 degree turn onto chain.

long been a vital industry of our southeastern states. The plant of Taylor, Lowenstein & Co. at Prichard, Ala., is one of the country's largest producers of turpentine. The scope of its operation is indicated by the 1,000,000-gallon storage capacity of the finished turpentine alone.

In the past, all of this material was shipped in bulk, either in tank cars or 55-gallon drums. A relatively recent development has been the sale of turpentine to the household user in half pint, pint, quart and gallon containers. The development of suitable packaging containers and equipment was complicated by certain characteristics of the product such as, inflammability, vaporization, expansion and corrosiveness. Here is how Taylor, Lowenstein & Co. solved this problem.

Two types of containers are used, cans and bottles. However, since cans are considered more suitable, this article deals only with them.

Simple Method of Feeding

The finished product is piped from the distilling plant into one of

eight storage tanks adjacent to the packaging and warehouse building. As the material is needed, it is pumped into a dehydrator tank which removes the water that has accumulated due to condensation. The turpentine enters from the bottom of this tank and is forced through 18 inches of gravel and 42 inches of rock salt. It then drains into the settling tank after passing through chamois bags.

The dehydrator and settling tank are located on a mezzanine, providing gravity flow to the filler on the lower level. The cans used are the lithographed square type with screw type closures. They are received in reshipping corrugated paper cases of various sizes. Six gallons, 24 quarts and 48 pints constitute a case.

The cans are removed by an operator who places them on a table adjacent to the filler. This table is equipped with an adjustable cleat on one side and a permanent one on the other. When a changeover is necessary the adjustable cleat is reset to accommodate the cans of different width. This arrangement



AUTOMATIC METAL SEAL fastening belt and manual screw cap replacement. Note mounted adjustments.

permits the lining up of four gallon cans, eight quart or pint cans. The

filler machine operator picks up an entire row of cans and places them on the filling machine bed, (see illustration).



CASE LOADING and sealing. Cans transferred two at a time. Platform minimizes stooping.

Safe Filling and Safe Sealing

The filling machine is semi-automatic and adjustable to fill four gallon cans or eight quart or pint cans simultaneously. A change-over requires the repositioning of the filler spouts and the can guides on the machine bed. As the operator places the empties on the bed he seats the cans into the runways provided by the guides. The guides are used to line up the can openings with the filler spouts. After positioning the containers, the operator pulls a lever to advance the row to a position directly beneath the spouts. Another lever is pulled to lower the spouts and start the flow of liquid.

When the metal containers are filled, the flow is automatically shut off by air vents located in the spouts. Because turpentine varies as much as one half of one per cent with each 10 degrees of temperature over 60 degrees, the air vents which control the quantity are adjustable to compensate for temperature variations.

As the filled units are ejected from the filler, a worker places a thin metal seal into each can open-

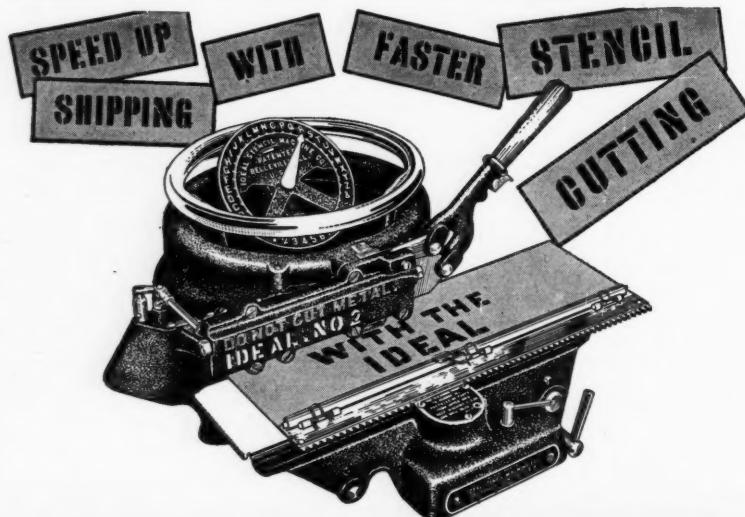
PACKAGING MECHANICS SECTION

ing. This seal is later seated automatically and is used as an added protection against evaporation.

From the filler the cans go onto a chain conveyor running at right angles to the filler. To turn the cans the necessary 90 degrees, a converging guide is used. To press the seals securely into place, and provide a true seal, an overhead

pressure belt is employed. This belt is powered from the chain conveyor beneath and geared to run at the same speed (see photo). One end of the belt is one half inch higher than the other so that seals receive gradual pressure as the cans pass beneath.

Next, the screw type caps are applied to provide the second closure. The caps are attached manually and then tightened by hand with the aid of a knurled hand cap tightener. A power type tightener can-



AUTOMATIC CARRIAGE ACTION

and 8 other ways better.

- EASY-TO-FOLLOW POINTER — Large red-tipped letter indicator.
- MINIMUM MARGIN GRIP—Saves as much as 20% in stencil board use.
- READING-ANGLE DIAL—At a 45° angle to avoid eye strain and errors.
- VISIBLE CUTTING—No blind guesswork—reduces errors and stencil waste.
- LARGE DIAMETER HAND WHEEL—Spins and stops effortlessly.
- AUTOMATIC WORD SPACER—Handle trigger does it automatically.
- SHORT STROKE, EASY GRIP HANDLE—For speed and ease-of-operation.
- SELF-ALIGNING—Regardless of cutting speed, lines are always straight and parallel.
- SAFETY HOOD—Protects operators hands and encloses machine from dampness and dust.



At the end of a line—a flip of the shift lever automatically returns it to the starting point.

It's ready for the next line—with a slight touch of the automatic thumb lever.

Instead of cumbersome roller movement, the Ideal has rapid carriage action that instantly positions the stencil for each line—no manual "stencil fumbling"—it's all automatic and precise. That's why even the untrained worker can't go wrong with the Ideal Automatic Carriage Action—speed and accuracy come easy to the Ideal operator. Speed up your shipping with the Ideal—only Ideal has Automatic Carriage Action.

Write for your copy of the Ideal Shipping Guide and full particulars on the Ideal Stencil Machine

IDEAL
STENCIL MACHINE CO.

104 IOWA AVE., BELLEVILLE, ILL.

not be used because of the corrosive effect of the turpentine upon the rubber chuck, and the resulting slippage and consequent faulty closure. The completed cans come off the end of the chain onto an accumulating table, where they are placed into the reshipper cases.

OYSTERS TRAVEL FAST... (Continued from page 62)

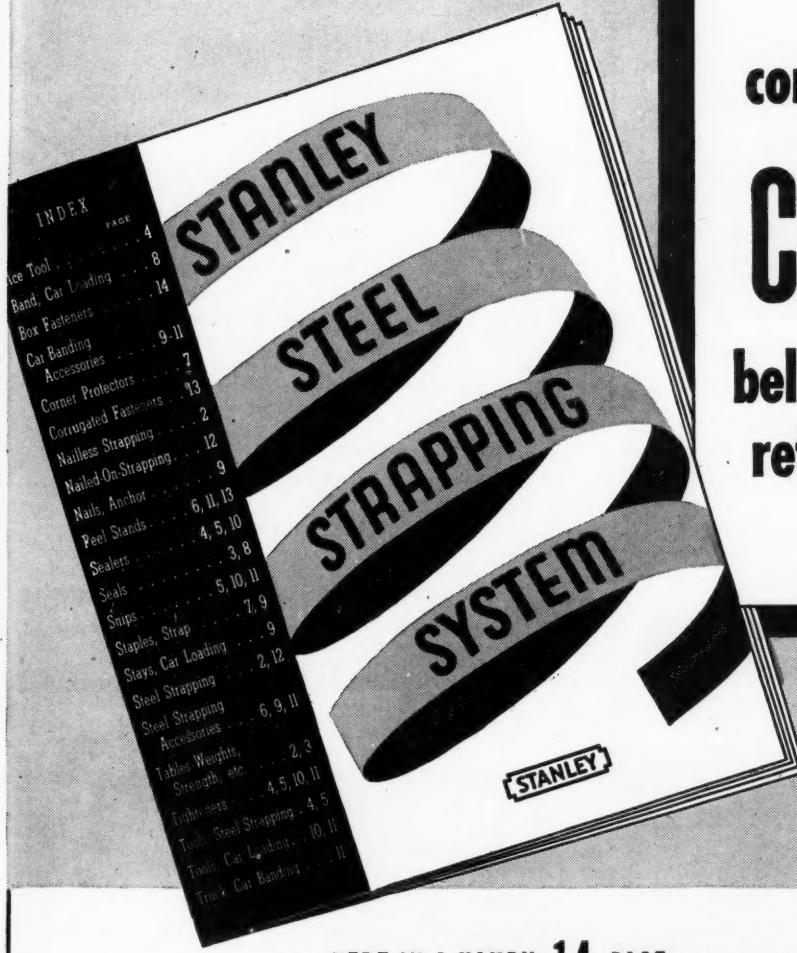
capped cans are placed into retort baskets. The latter are spotted on triangular dollies, shown, which are equipped with three six-inch swivel casters. When loaded, the dolly with its baskets are moved about 50 feet to the processing kettles.

Layout For Hoist Handling, Labeling

Seven kettles are mounted in a semi-circle, with a revolving jib hoist in the center, as shown. The baskets are picked off the dollies with the hoist and lowered into the kettles. After cooking, the cans are water cooled for 10 minutes. The processed units are then wheeled to the adjacent warehouse.

The cans used are of two kinds—lithographed, which need no labels, and plain ones which require them. Because the same merchandise is sold in various localities under different brand names, a large variety of labels is required. For that reason the cans are stored unlabeled; labels are added when the orders are received. Consequently the cans are placed in unsealed cases and so stored until ready for shipment.

When an order is received the cases are delivered to the labeling machine on skids. Two men unload the cans from the cases and place them in chutes that feed a machine, capable of applying 160 labels per minute. The cans are then replaced into the same cases. The unsealed flaps are glued and the cases are placed on a portable belt conveyor with the freshly sealed flaps down. This belt is set at an angle to provide the elevation necessary for gravity runs of wheel conveyor which are mounted on adjustable stands. The gravity lines deliver directly to the outbound cars or trucks, or to a temporary storage area adjacent to the shipping dock.



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HERE IN A HANDY, 14-PAGE letter-size booklet are the quick facts and figures on steel strapping. Tables of tempers and finishes, of pounds per thousand feet, of feet per pound, of strength of strapping and seals, number of seals per 100 lbs. and weight per 1000 seals. Large, clear photographs and drawings with dimensions. Short, factual descriptions of various types, sizes and finishes of strapping, seals, tools and accessories... and related products such as corrugated fasteners and box fasteners.

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Please send me your catalog, "Stanley Steel Strapping System".

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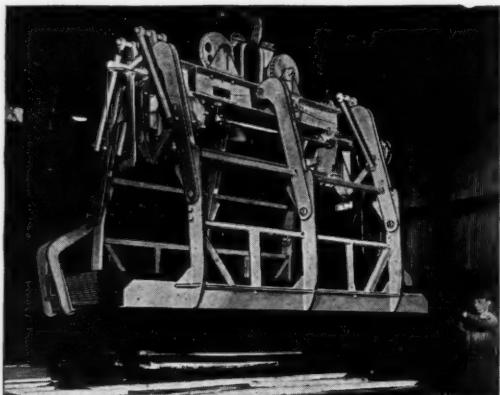
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Reg. U. S. Pat. Off.

HARDWARE • HAND TOOLS • ELECTRIC TOOLS • STEEL STRAPPING



You can produce only as much as you can handle

WHEN you use C-F Sheet Lifters to load, carry and unload loose or bundled sheets in and out of storage, you keep no machine or operator idle, waiting for material. C-F Lifters provide a faster, safer and more economical method of handling sheet stock because they carry more sheets per load, have a tong action that grips loads tightly, preventing stock slippage or sag, yet design features such as wide bearing surfaces give full protection to stock edges. One man end or remote cab control keeps operator away from sides—stock can be loaded or unloaded in close quarters with resulting savings in storage room.

Jaw controlling mechanism provides infinite adjustments from minimum to maximum widths. Control is fast, positive. C-F Lifters have standard and optional equipment that will exactly meet any materials handling requirements you may have. Lifters are available in capacities from 2 to 60 tons or larger, in standard or semi-special designs. Write for new illustrated Bulletin—just off the press.

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Don't let worn-out floors slow-down production. Rebuild them with 'Incor' 24-Hour Cement—do the job over a week-end. Get better, longer-lasting, heavy-duty floors, because 'Incor' cures THOROUGHLY in 24 hours. Write today for this new how-to-do-it book.

For copy of "Concrete Floors," address Lone Star Cement Corporation, Room 2204, 342 Madison Ave., New York 17, N.Y.

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NEW MARSH Electric

STENCIL MACHINE

Here it is... the first *Electric* Stencil Machine! Cuts perfect stencils with effortless movement, amazing speed, lower cost per stencil. Std. 1/6 H. P. motor, works in any light socket at less than 2¢ per hour. Three size machines 1/2", 3/4", 1". Write for catalog and prices.

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STENCIL MARKING



SAVE TIME, LABOR, MONEY, TROUBLE, with FMC Flat-top STEELBELT. Conveys bags, boxes, cans, and packages and products of endless variety. Made of 302 (18-8) stainless steel. Supplied in any length and in widths in multiples of even inches. Easy to clean, easy to splice. Allows free circulation of air, water, steam, etc.



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THE STEEL BOUND
SKID PLATFORM



with the
RE-NU TOP

Renewable hardwood deck bound in heavy steel angles, clamped with $\frac{1}{2}$ " steel bolts. Can be used with all makes hand or power lift trucks. Designed to fit YOUR job with capacities from 500 to 20,000 pounds. Plain or armored ends. Stake pockets, crane hooks, special racks and bins available.

**THE
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COMPANY**

12TH AND MAGNOLIA
LOUISVILLE 10, KENTUCKY



The
"LITTLE HUSTLER"
TRANSFERS STAMPINGS
AS FAST AS PRODUCED!

The "Little Hustler" is fully portable and quickly adjustable to a wide range of applications. The 8 foot size shown above has a maximum delivery height of 81 inches at 45° and 50 inches in a horizontal position. Made in 13 models: 4-6-8-10 and 12 ft. long, by 12", 18" or 24" wide. Also special sizes. Send for circular LHC. We design and manufacture permanent conveyor systems and all types of SPECIAL EQUIPMENT.

MAY-FRAN
ENGINEERING, INC.
Development Engineering and Manufacturing
1710 Clarkstone Rd. Cleveland 12, Ohio

**Steel Adjustable
Compartment
Shelf Drawers**



Style 90 BCH

Immediate Shipment

BAY adjustable compartment shelf drawers are ideal for handling and storing small quantities of small parts. Boxes are slotted on 1" centers to accommodate dividers. Label holder on front of box for easy identification of contents. Pull handles on front only. Drawers are finished in baked green. Dividers are furnished at slight extra cost.

Other Sizes and Styles Available

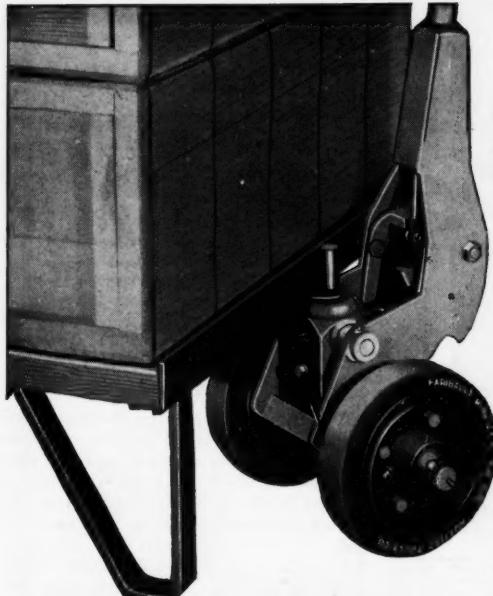
91 BCH $5\frac{1}{2} \times 11\frac{3}{4} \times 2\frac{1}{2}$ Green Finish, 92c ea.
92 BCH $5\frac{1}{2} \times 17\frac{3}{4} \times 2\frac{1}{2}$ Green Finish, 1.06 ea.
93 BCH $8\frac{1}{4} \times 11\frac{3}{4} \times 2\frac{1}{2}$ Green Finish, 99c ea.
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**THE ONLY MECHANICAL JACK
WITH NO SPRINGS**

Nutting **JACK AND
LIVE SKIDS**

**FOR FLEXIBLE
LOW COST
MATERIALS HANDLING**

Only the Nutting Jack is operated by gravity and leverage—no springs to break!—no danger of your jack-skid system suddenly bogging down. The Nutting Jack is unique in its simple, rugged construction, and has many other advantages: complete control of load at all times, easy swiveling under full load, extreme range of tongue positions for short turns, extra high lift for steep ramps or high thresholds without striking skid legs.

Nutting Live Skids are sturdily built to Nutting standards of quality. They take the grief year after year! A large range of standard platform sizes, with superstructures available if desired. The Nutting Jack-Skid System is outstanding—investigate!—compare!

Nutting Makes Everything in FLOOR TRUCKS, WHEELS, CASTERS. Look in your classified phone directory for your nearest Nutting representative, or write for Bulletin 48-C direct to

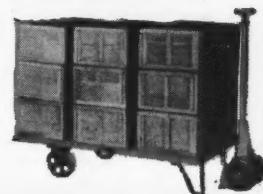


FIG. 421, Standard Industrial Skid, 9 platform sizes from 24" x 48" to 42" x 72". Capacity 1800 lbs. Metal or Rubber Tired Wheels.

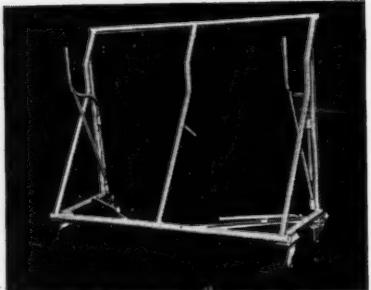


FIG. 420, Heavy Duty Industrial Skid, 9 platform sizes as above. Welded angle steel frame. Capacity 2800 lbs. Metal or Rubber Tired Wheels.



**NUTTING TRUCK
and CASTER COMPANY**

1602 DIVISION STREET, FARIBAULT, MINNESOTA



ROL-AWAY

One-Man Trucks for
"Hard-to-Handle"
Loads

Wherever you move odd shaped loads you'll find Rol-Away cuts down time and expense in handling. Specially designed to handle such materials as sheet metal, plate glass, plywood, plasterboard, pipe, tubing and any type of flat cased materials. Made of sturdy aluminum tubing, Rol-Away can be loaded, rolled and unloaded by one man. Made in three sizes from 2400 to 3000 pounds capacity.

- * Rolls in any direction
- * One-man operation
- * Compact—saves space
- * Saves labor and expense
- * Safe—cannot tip or slip
- * No lifting to load or unload

The ROL-AWAY

BEALL Pipe & Tank Corp.

1945 N. Columbia Blvd., Portland 3, Oregon

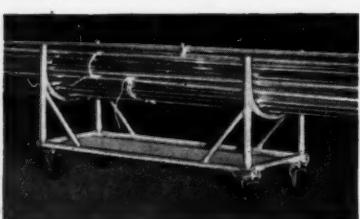
Gentlemen: Please send illustrated folder on Rol-Away Trucks.

Name.....

Firm.....

Address.....

City..... State.....



Rol-Away Tubing Truck specially designed for handling pipe, tubing, bar stock, moulding and other long loads. Aluminum construction—stretcher below for holding packages.

NEWS FROM - - - THE SALES FIELD

L INDSEY AND VOSS, Chicago area distributors of Automatic Transportation Co., recently announced a newly-established showroom and general offices on Chicago's Michigan Ave.



L. R. Lindsey



P. W. Voss

The trucks which haul and stack crates, barrels, cartons, and cans, are displayed like passenger automobiles on this well-known avenue. In addition to these quarters, the firm will shortly open a new large service department in Oak Park, Ill.

THE MARKET FORGE CO., Everett, Mass., has named the following as stocking distributors: Green-Penny Co.,

Los Angeles; Road Builders Equipment Co., Memphis, Tenn.; McGowin-Lyons Hardware & Supply Co., Mobile, Ala.; Columbus Iron Works Co., Portland, Ore.; Mill & Textile Supply, Inc., Birmingham, Ala.; Allison-Erwin Co., Charlotte, No. Car.; American Machinery Corp., Orlando, Fla.; and Jos. S. Babush Co., Boston.

THE IRA G. PERIN CO., San Francisco: This material handling equipment distributor appointed James W. Lafferty as technical sales engineer. Lafferty has been assigned to the Los Angeles office to service the firm's accounts in southern California. The Perin Co. is California distributor for Elwell-Parker power industrial trucks, Electric Wheel trailers, Powell Pressed Steel containers and platforms, and Hillwood Helyx drive screws.

LEONARD P. FULLER, JR. AND RICHARD H. KRUEGER have been named as district representatives in California by Robert C. Neiswander, sales manager of the Hertner Electric Co., Cleveland.

DICO *Float Away*
BAR & DRUM
TRUK

MOVES THEM EASY

STANDS ALONE

AMAZING Performance

One man handles heaviest drums all day with a "float-away" without using a lift truck. Unique design—out wheels and axle never leave the floor when loading. Truck toes slide forward under barrel as carriage retracts to gently receive the drum. A light weight, perfectly balanced truck that now can be used for short hauls. A compression cylinder enables the truck to stand vertically-easy to store out of way—always handy. Unbreakable, adjustable chime hook for straight and banded drums. All bearings, all metal or rubber tired wheels.

ASK YOUR JOBBER, or write
DICO MFG. CO. Division

DICO CORPORATION
404 S. W. 16TH ST. DES MOINES 5, IOWA

THOMAS
Double Purpose
LIFT TRUCK
JAK-TUNG

1. With Jak-Tung for short moves
2. With Power Unit for long moves

This Thomas handling system combines power truck, hand lift truck and Jak-Tung operation. For long hauls use a power truck, for short movements and spotting of loads in crowded quarters use a Jak-Tung lift unit. This dual purpose Jak-Tung truck thereby gives more flexibility and efficiency than dead skids. Avoid waiting for power unit . . . reduces number of lift trucks needed . . . lifts from any angle.

One of many Thomas Jak-Tung, 2 wheel and platform trucks. Write for catalog.

THOMAS TRUCK AND CASTER CO.
3173 Mississippi River Keokuk, Iowa
Representatives in principal cities

STEUBING ENGINEERING ASSOCIATES: This company has been appointed by the Mercury Mfg. Co., Chicago, to represent them in the Cincinnati area.

PORTABLE SERVICE EQUIPMENT CO., Philadelphia, announces its appointment as the Eastern distributor of Tract-R-Lift.

ROBERT J. BARNETT has been named associate manager of The Rapids Handling Equipment Co., Grand Rapids, Michigan, according to Harvey Rasmussen, president. The company distributes Rapids-Standard and eight other lines of material handling equipment in western Michigan. Barnett, a sales representative of the company for over two years, will take on sales supervision duties.

NEW YORK BELTING & PACKING CO. has appointed Bonner & Barnewell, Inc., New York, N. Y. as its distributor for the New York area. J. Allan Machin, newly-appointed vice-president, will supervise distribution of belting, hose, packing and other industrial products made by New York Belting.

APPOINTMENT of the Penn Central Equipment Co., Altoona, Penn., as a distributor of the entire Hewitt Rubber Division's line, was announced by J. H. Hayden, vice president in charge of sales, Hewitt-Robins Inc. The line includes industrial hose, conveyor and transmission belting, and packing.

SAGE HAND TRUCKS



Sturdy all welded construction gives highly satisfactory service under continual hard use. Available with curved or straight back.

Ten inch rubber tired ball bearing wheels. Large nose plate facilitates easy loading. Overall height 51", width at top 19½", width at base 14". Write for details on this item and our full line of Materials Handling Equipment.

**SAGE
EQUIPMENT COMPANY**
30 ESSEX STREET • BUFFALO 12, N. Y.
(District Engineers in All Principal Cities)

Mechanical handling in your yard pays too— with **ROUSTABOUT CRANES**

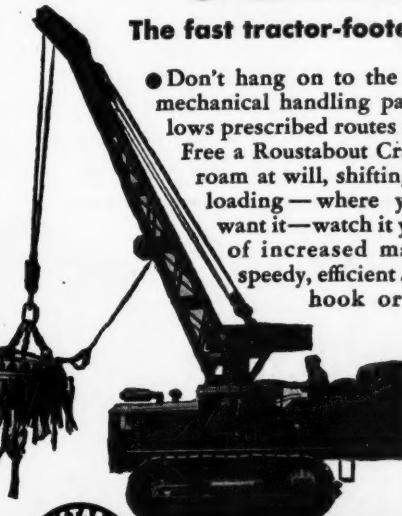
The fast tractor-footed load-hustlers

Don't hang on to the old-fashioned idea that mechanical handling pays off only when it follows prescribed routes and methods—indoors.

Free a Roustabout Crane in your yard—let it roam at will, shifting, stacking, loading, unloading—where you want it, when you want it—watch it yield pay dirt in the form of increased man hour savings—and speedy, efficient action. Loads to 7½ tons, hook or magnet, mounted on

wheel or crawler tractors. Ruggedly built for years of overwork. Make your yard contribute to profits, too—get the Roustabout economy facts now.

Write to Dept. C-5.



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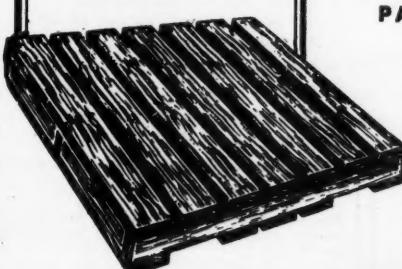
Load-Handling Specialists since 1904



**57 Varieties of Food
but only 1 make of Pallet**

**H. J. HEINZ COMPANY
SPECIFY RUGGED
NATIONAL
PALLETS and SKIDS**

Throughout the many Heinz warehouses, you'll find NATIONAL pallets serving on almost "57 Varieties" of materials-handling jobs. Heinz has learned to count on NATIONAL for the ruggedness, endurance, and uniform dependability they need for their palletizing program.



Let NATIONAL help you in your palletizing program too. Our plants, throughout the country's hardwood sections, enable you minimum shipping costs on large nation-wide programs.

Especially in food plants—dependability of the pallet supplier is a "must." For there may be "57 Varieties" of materials-handling problems and a different type of pallet required for each type. So Heinz now specifies one make of pallet—NATIONAL—the oldest and largest pallet manufacturer in the country. They know the name NATIONAL means dependability.

**NATIONAL
PALLET CORPORATION**

MAIN OFFICES OLIVER BLDG. PITTSBURGH 22, PA.

Send for NATIONAL'S pallet catalog—or ask for a representative to call on you.

MEN IN THE NEWS

WILLIAM C. CARR, 80, founder of the Automatic Transportation Co. in 1906, died recently at his home in Alexandria, Va. An inventor, Carr was a pace-maker in the development of electric material handling equipment.

ALVERT CAREY, president of The Yale & Towne Manufac-

turing Co. has announced the appointment of Gilbert W. Chapman as vice president in charge of finance. Chapman was the former president of the American Water Works Co., Inc.

AT THE 13TH ANNUAL MEETING of the Association of Cleveland Warehousemen, Frank L.

Conaty of the Conaty Warehouse Co. succeeded Robert C. Greeley of The Greeley-General Warehouse Co. as president of the organization. Other officers elected were, Benjamin E. Woeste, vice president, and M. J. Tanzer, secretary-treasurer.

* * *

THOMAS TRUCK AND CASTER CO.



THOMAS TRUCK AND CASTER CO. has announced the appointment of W. L. Hutton as vice president and general sales manager. For the past three years, Hutton has been president of the Hutton Wheel Corp.

recently purchased by the Thomas Co.

* * *

CHARLES S. WEBER



CHARLES S. WEBER has been appointed advertising manager of The Thew Shovel Co., according to an announcement by J. L. Beltz, manager sales promotion. Weber was formerly production manager of The

White Advertising Co., of Cleveland. Beltz will continue to head the department.

* * *

WILLIAM L. DEAN



WILLIAM L. DEAN has been elected president and general manager of the Mathews Conveyor Co., at the annual meeting of directors. Dean has been associated with the Mathews organization since 1909, and has served as vice president and general manager since 1943.

* * *

A NEW WAY TO Raise Production

with STEEL-PARTS
STEEL BELT
Elevating
CONVEYOR

Now . . . a NEW way to raise production and employee efficiency . . . to cut unit cost and operating space! STEEL-PARTS new ELEVATING steel belt conveyor is unbeatable for sending parts or packages from floor to floor in a continuous flow . . . lifts packages up or down . . . loads or unloads at desired height. Incorporates all of the famous features of STEEL-PARTS standard models. Let STEEL-PARTS engineers make specific recommendations concerning your materials handling problems. Mail the coupon today!



ENGINEERING DATA

- **BELT**—heavy 18 gauge steel.
- **WIDTH**—12 inches to 30 inches.
- **LENGTH**—5 feet to 30 feet.
- **SPEED**—Up to 50 feet a minute.
- **H.P. REQUIRED**—1/2 to 2 horsepower.

- **LOAD LIMIT**—(recommended) 50 lbs. per arm. This can be exceeded 50%.
- **PULLING LOAD LIMIT**—1000 pounds.
- **ARMS**—18 inch maximum length. Can carry a load up or down.

STEEL-PARTS MFG. CO.
4630 W. Harrison, Chicago, Ill.

Please send me complete information including engineering data and specifications on your Steel-Belt Conveyors.

Please have your representative call to discuss our specific materials handling problems.

NAME _____ POSITION _____

FIRM _____ ADDRESS _____

CITY _____ STATE _____

STEEL-PARTS
MANUFACTURING CO.

DIVISION OF BLACKSTONE
MANUFACTURING COMPANY

R. W. HELMIG has been elected a vice president and director of The Electric Products Co. at the annual board of directors' meeting. The company manufactures battery-charging equipment, electrolytic equipment,

synchronous motors and other specialty equipment. Before joining the company in 1944, Helmig was connected with Delco Products Corp., and had owned The Plane-film Corp.

FRED W. Roth, 15-year veteran of the industrial storage battery industry, has been elevated to the post of vice president in charge of Trenton plant operations for the Gould Storage Battery Corp. Roth was formerly works manager of the Trenton plant of the Storage Battery Division of Philco Corp.

JOHN A. ROEBLING'S Sons Co., manufacturers of wire rope and wire products, announces the appointment of **E. George Hartmann** as general sales manager. With 29 years experience in the wire field, Hartmann has

E. G. Hartmann been associated with Roebling since 1940. He is a member of the Wire Assn. and the American Iron and Steel Institute.

WILLIAM WENDT is now district manager for the Ready-Power Co., for the states of Texas, New Mexico, Oklahoma, and Louisiana. The company manufactures engine generators, refrigeration

units, and units for electric truck operation.

MILTON C. Carlson has been made assistant sales manager of the Signode Steel Strapping Co., according to J. M. Moon, sales manager. Carlson has been with the company since 1929, and was advanced to Chicago district sales manager in 1943.



FRANK H. CONNOLLY has been appointed general sales manager of the Wright-Hibbard Industrial Electric Truck Co. He was formerly with the Moblift Division of Vaughan Motor Co.

MONORAIL MANUFACTURERS Association, New York, announces the election of the following: president, E. J. G. Phillips, Richards Wilcox Mfg. Co.; vice president, A. F. Angeskey, Cleveland Tramrail Division of The Cleveland Crane & Engineering Co.; secretary, E. Donald Tolles.

We Have a Story to Tell You



It is a story you will want to hear—because it tells you of added protection and added efficiency at lower cost in the shipping of your products.

In other words, it is the story of SUPERSTRONG boxes and crates—"Bound with Steel."

You will find the full story of the SUPERSTRONG man both interesting and profitable. Write us as to when you wish him to come and see you.



RATHBORNE, HAIR AND RIDGWAY COMPANY
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

SLASH Handling Costs!



with

DRUM-MASTER

Regardless of the task, the Drum-Master will handle every size and type of container safer, faster and cheaper than any other piece of equipment made.

Easily installed, the Drum-Master's fully automatic operation not only eliminates all manual handling but *obviates the need for pallets at the same time*. As a result, the cost of a Drum-Master is usually more than offset by the pallet investment saved.

FOR THE ULTIMATE IN CONTAINER HANDLING EFFICIENCY, SEE YOUR LOCAL FORK TRUCK AGENT OR...

Write, Wire or Phone

WILLIAM EHLERS

408 So. Spring Street
Los Angeles 13, California
Phone Michigan 1740

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates for "Positions Wanted" \$4.00 minimum for 25 words, each additional word 10¢; bold-minimum, limit 25 words. For all other face type or all capitals, \$7.50 minimum for 25 words, each additional word 15¢; limit 50 words. Box addresses count as five words. All insertions are payable in advance.

USED EQUIPMENT WANTED

WANTED

USED MATERIAL HANDLING EQUIPMENT

We Buy **FORK LIFT TRUCKS**
Gasoline or battery driven
Gravity Conveyors, Hand Lift Trucks,
Pallets, Cranes
A & A MACHINERY CORP.
1267 Flushing Ave., Brooklyn, N. Y.

FOR SALE

LEWIS-SHEPARD POWER JACK-LIFT, Platform Model #E4W-7-48; Platform 28"x48"; Lift 4"; Down Height - 7"; Capacity - 4000#; Philco Battery, GE Rectifier, Excellent Condition. Used 20 Hrs. Priced Reasonably. Box 9148.

SALESMEN, DISTRIBUTORS

WANTED MANUFACTURER'S AGENTS to handle our line of Aluminum lifetime hand trucks. Several sections of the U. S. still open. In replying give territory you cover, lines now handled, number of men you travel, brief history of your organization. Box listing 9248.

Transmission Design Engineer—Position with manufacturer of road building machinery and material handling equipment. Transmission design experience essential. Location 40 miles N. W. of Chicago. Please give complete details. Frank G. Hough Co., Libertyville, Illinois.

Materials Handling Salesmen and Distributors Wanted. We design and build Special Processing and Materials Handling Floor Trucks. Years of experience and low overhead make our prices highly competitive. Submit your design or problem. We "Specialize in Specials." Let us know what territory you cover. Moffat Steel Company, Bethlehem, Pennsylvania.

6 - Automatic Model THTFLPFL telescope fork lift trucks, 6000 lb capacity at 60" load length. These trucks are in excellent condition, are 2 years old and are equipped with Ready Power Units, and can be purchased reasonably. Box 9348.

Can you use a Pacific Coast Sales Representative who knows Materials Handling Equipment and has a wide acquaintance with California Dealers and Distributors? Box 9448.

Man with 10 years' experience in the engineering, administrative and operational phases of Material Handling will be available October 15th. College education. Short or long term assignment acceptable. Box 9648, FLOW.

"REPRESENTATIVE WANTED"

MATERIAL HANDLING SALES ENGINEERS. We are interested in REAL "hard-hitting" experienced SALES ENGINEERS — men who know WHAT and HOW to do IT, with self-confidence and proven ability to produce desirable RESULTS on straight commission earnings. Exclusive established Conveyor and Electric Truck Sales territories available in Wisconsin. Complete service facilities. Write full details experience and financial responsibility to properly qualify. Box 9548, FLOW.

PALLETS

MADE TO YOUR
SPECIFICATIONS!

From Air Dried Hardwoods

ALSO
BOX PALLETS
BULKHEADS
CRATES

Write and tell us your needs
or send us your specifications
for quotation.

Incorporated 1922

BIGELOW-GARVEY LUMBER CO.

326 W. Huron St. Chicago 10, Ill.
Phone: WHitehall 5352

MILLS: Arkansas - Georgia - Wisconsin
Minnesota



LITERATURE and BULLETINS

The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Drum and Barrel Carrier . . .

Brantwood Products offers a pamphlet describing Ernst drum and barrel carriers. Included are action pictures, specifications, operating instructions, and overall features. It is stated that this carrier will lift open or closed drums without spilling the contents or damaging the container.

26—Electric Truck . . . From the Barrett-Cravens Co., an eight-page brochure on its PowerOx, electric lift-truck. It pictures and describes the truck, together with applications, operational features, and time and cost studies. The model provides electric power for lifting as well as forward motion.

27—Stencil Cutting Machines . . . Diagraph-Bradley Industries, Inc., is offering a booklet describing an attachment for its $\frac{1}{2}$ " and $\frac{3}{8}$ " Housed Model Stencil Cutting Machines. This attachment enables circular stencils to be cut on the machines, as well as the conventional straight line stencils. Either attachment will cut a circular stencil up to 21" in diameter.

28—Floor Resurfacer . . . For those interested in patching ruts and holes in floors, traffic aisles, and driveways, a folder has been issued by the Stonhard Co. The Resurfacer is designed for repairing all types of floors, including cement, brick, asphalt, wood, or composition. It is stated that floors so treated are ready for use within 36 hours.

29—Hand Truck . . . A new two-color bulletin on the Wheel-Ezy hand truck with zero pressure tires has been issued by The Rapids-Standard Co., Inc. It illustrates the uses of this truck, and lists exclusive features and specifications of four models.

30—Electric Fork Trucks . . . The current issue of the Clark Equipment Co.'s Material Handling News presents a detailed description of its electric battery-powered fork trucks and their use in fields to which they are best suited. Industrial applications are pictured and discussed.

31—Industrial Scales . . . The Exact Weight Scale Co. has issued a four-page pamphlet illustrating and describing six models of its industrial scales. Shown are both electrical and mechanical models, all with capacities of 75 lbs. Operating features and specifications are also given.

32—Wirebound Boxes . . . "Your Product in Wirebounds," a booklet designed for the benefit of those concerned with packing industrial products for shipping, is offered by the Wirebound Box Manufacturers Association. It is illustrated to demonstrate the use of wirebound shipping boxes and crates for industrial products in both domestic

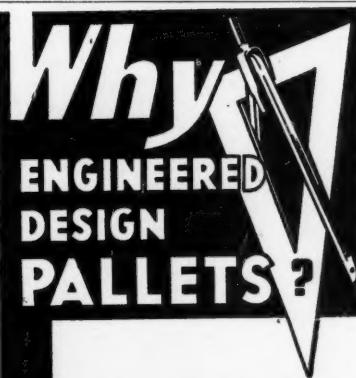
and export trade. A wide variety of designs, types and styles of wirebound containers is shown together with their various applications.

33—Material Handling Equipment . . .

Alameda Distributors are offering a 12-page bulletin covering its entire line of material handling equipment. Included are hand lift trucks, conveyors, specialty trucks, dock and freight car equipment, casters and power stackers. Operating features, dimensions, and complete specifications are included.

34—Electric Fork Trucks . . .

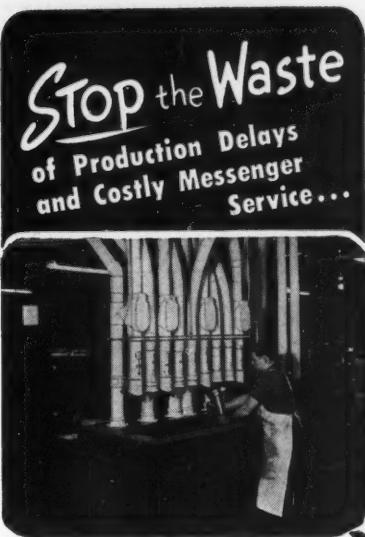
A seven-page, two-color catalog is available from Wright Hibbard Industrial Electric Truck Co., Inc. It describes its 2000, 3000, and 4000-lb. capacity central control tilting fork trucks. Engineering data, specifications, and operating features are detailed. Pictures are included of the individual models and their component parts.



Economy and efficiency are built into ENGINEERED DESIGN pallets— the pallet manufactured specially for YOUR product.

Top warehousemen agree that ENGINEERED DESIGN pallets fill the bill in every way. Write today for the solution to YOUR warehouse problem!

Pallets Incorporated
Manufacturers of
ENGINEERED DESIGN Pallets
GLEN FALLS, N. Y.



International Business Machines, Endicott, N. Y.

LAMSON Pneumatic Tubes

RUSH papers, blueprints, shipping orders, mail, time tickets, small tools and specimens to any desk in your plant.

SAVE time, money and motions. Coordinate your various departments for greater efficiency.

Yet Lamson Tubes are surprisingly low in cost. In many plants they pay for themselves in less than two years. In one plant, they saved \$150,000.00 the first year.

LAMSON CONVEYORS

Cut Materials-Handling Costs up to 30% . . . They eliminate heavy physical work . . . speed production by maintaining a steady flow of materials . . . free men for more important jobs. And they save up to 30% of your manufacturing dollar. Lamson Engineers can design, build and install Conveyors in practically any plant, warehouse or factory.





They make the pace

When 'Budgit' Hoists are placed on production, assembly, and inspection lines, the work goes much faster and easier for the worker. Many minutes are saved each hour in the day. That means production goes up, costs come down. So a 'Budgit' Electric Hoist pays for itself over and over again in the long years of trouble-free service it will give you.

Workers like the little yellow 'Budgit'—they make their jobs easier, rid them of all fear of rupture, sprain, strain, and prevent that tired, all-gone feeling before the day's work is done.

Wherever lifting of loads from 250 to 4,000 pounds is a good part of each day's output, there is the place where 'Budgit' Electric Hoists save money and time.

There are no installation costs to 'Budgit' Hoists. Hang them up, plug into the nearest electric socket, and use. The cost of current is so small you'll never consider it as part of "costs."

Why not check today in your plant for places where 'Budgit' Hoists can increase profits for you?



Made in sizes to lift 250, 500, 1000, 2000 and 4000 lbs. Prices start at \$119. Write for Bulletin No. 371.



'BUDGIT' Hoists

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

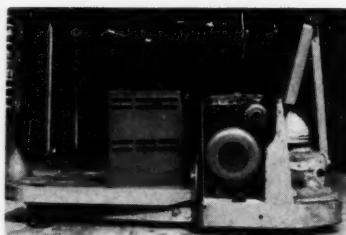
Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of Ashcroft Gauges, Hancock Valves. Consolidated Safety and Relief Valves and 'American' industrial instruments.



For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13, or use postcard bound into this issue.

GASOLINE GENERATOR

1—Power Plants, Inc. announces a small 12-volt gasoline driven generator set which fits in the battery compartment.

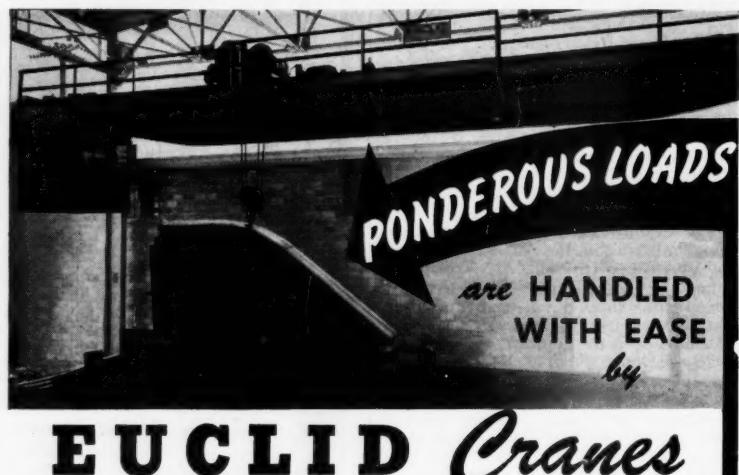


ment of electric trucks. The unit can be furnished with either a 4 1/2 HP single

cylinder gasoline engine or with a ten HP two cylinder aircooled gasoline engine. According to the release, no mechanical changes have to be made, since the generator set is installed by merely removing the battery. A small automobile-type battery is used for starting the engine.

MOTORIZED HAND TRUCK

2—Moto-Truc announces the redesigning of its high-lift, motorized hand-operated walkie truck. Features include a 12-volt motor drive unit, 2500-lb. capacity, shorter over-all length and turning radius, and lighter weight for operation on trucks and trailers. Three models are available: 66-inch non-tilting, 66-inch with tilting mast (both are 83 inches in over-all height), and 80-



EUCLID Cranes

EUCLIDS give you power when you want it and strength where you need it with ease of precision control.

An impressive number of leaders in the heavy industries successively "repeat order" on EUCLID CRANES.

Quality is built into even the smallest parts to assure years of efficient, economical service.

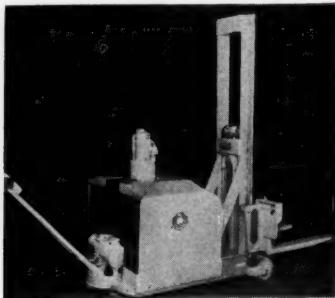
EUCLID CRANES are available in sizes from 1/2 to 100 tons capacity and in spans up to 100 feet.

THE EUCLID CRANE & HOIST CO.

1362 CHARDON ROAD • EUCLID, OHIO



inch telescopic with tilting mast. Control handle provides two speeds forward



and two speeds reverse. According to the release, the two six-volt batteries will operate the truck for eight hours.

BARREL AND DRUM CARRIERS

3—Brantwood Products is marketing the Magic Carrier, a truck designed for safe transportation of drums and barrels. It is stated that the load will not



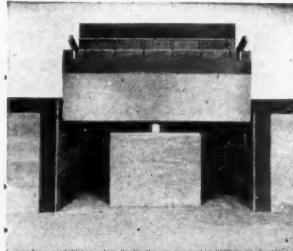
tilt, spill, or slip, nor will the carrier break or distort under the heaviest load. The carrier is designed for handling all 55 gallon drums and half drums, vertically, without manual handling of the drum. The load is lifted vertically with an eight-inch movement of the handle.

TELESCOPIC HAND TRUCK

4—A new 120-inch telescopic Work-saver has been announced by The Yale & Towne Mfg. Co. The new tilting fork model has a capacity of 3000 lbs. It is designed for reaching such high levels as mezzanines, servicing overhead cables and ducting, and loading airplanes, street trucks, and rail cars from ground level. The truck travels at two miles per hour under full load, lifts eight

IT'S THE NEW
LEVA-DOCK*
Adjustable Ramp
For
Loading Docks

New hydraulic device keeps dock lined up with truck bed level



The Leva-Dock moves up and down with varying truck bed levels—permits fork lift trucks or other vehicles carrying heavy loads to move directly into trucks or trailers. Users say there's nothing like it. Backed by Rotary's experience on 45,000 hydraulic lifts. Write for Catalog.

ROTARY LIFT CO.
1157 Kansas, Memphis 1, Tenn.

*Reg. U. S. Pat. Off.

This Tray-Pac Pallet used for shipping pistons, is a typical example of Rack material handling equipment built to customer specifications. Designed to furnish maximum protection, the rugged wooden and steel pallet and separators withstand the most severe shipping abuse, stack flats as shown below for convenient return shipping. Our experienced engineers stand ready to serve you. Write us for information about your material handling problems.

RACK ENGINEERING COMPANY
425 LIBERTY AVENUE - PITTSBURGH 22, PA.

TALKING PROFITS?



Then let us give you the full story on RapiStan Equipment.

POWER BELT UNITS

There's a complete range of portable and permanent belt units for loading, unloading, stacking, boosting gravity lines or floor-to-floor handling.



FLOOR AND HAND TRUCKS



All-steel, all-welded Wheel-Ezy® hand trucks have steel, rubber or plastic wheels.

Floor trucks have patented corner construction for heavy duty service.



GRAVITY EQUIPMENT

Get Rapid-Roller® for heavy jobs, Rapid-Wheel® (in steel or aluminum) where you want maximum portability. Full line of accessories (switches, spurs, etc.)



STEEL-FORGED CASTERS

The exclusive process of flame hardening means bearing races give longer service under the toughest use.

MAIL THE COUPON TODAY!

Get complete details on



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PROFIT BOOSTING EQUIPMENT

Check coupon for free bulletins

THE RAPIDS-STANDARD CO., INC.
377 RapiStan Bldg., Grand Rapids 2, Mich.

Send bulletins on the equipment checked

Portable Belt Units Rapid-Roller Conveyor
Permanent Belt Units Floor and Hand Trucks
Rapid-Wheel Conveyor Steel-Forged Casters

Name

Address

City..... Zone..... State.....



BARREL SKIDS

10 ft. new hardwood skids.....	\$13.50
12 ft. new hardwood skids.....	\$15.00
10 ft. new metal skids.....	\$13.50



STEVEDORE TRUCKS

Trailer hitch type to make up train for dock use. 48" wide, 12" heavy duty steel wheels with roller bearings. Used but in excellent condition. Original cost over \$200.00 Special price—\$30.00 each.

Special Dealer Discounts.

Free Folders—Just Write for Yours.

Over 500 items to make your work easier.

- #1 MATERIAL HANDLING EQUIPMENT
- #2 SHIPPING ROOM SUPPLIES AND EQUIPMENT
- #3 WAR SURPLUS MATERIALS

ALAMEDA DISTRIBUTORS

1926 Everett St.

Alameda, Calif.

1923 —25th ANNIVERSARY— 1948

more MOR-MERIT

"custom- built"

PALLETS



Courtesy of American Education Press, Inc.

to cut Handling Costs

Pictured above is another carload of Mor-Merit pallets designed to solve a specific material handling problem, efficiently and economically.

Take advantage of our construction "know-how" and large production facilities for pallets custom-built to your specification. Just send us your requirements and we'll furnish a prompt quotation.

MORGAN LUMBER SALES CO.

DEPT. FS-1 665 E. BROAD ST. COLUMBUS, OHIO

FLOW • SEPTEMBER, 1948

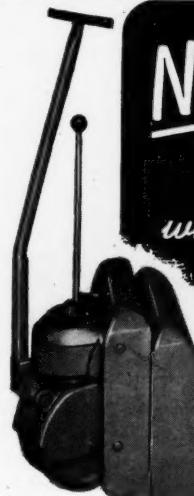
Select...



THE BEST CASTER
for your
load and floor
requirements

Where surface conditions and smooth travel are important factors, specify Saginaw Pneumatic Casters. Designed for fast, effortless handling ease and low cost operation...available in a complete range of sizes and specifications. Write for your Pneumatic Caster Bulletin today!

SAGINAW PRODUCTS CORP.
107 RIVER, SAGINAW, MICHIGAN



Easier to Operate

- Every stroke a power stroke with short-stroke vertical pump handle.
- Pulls and steers easily under load, ten inch front wheels.
- Pull handle stays vertical when not in use.
- Hand release valve gives fast or slow lowering.
- Stability in operation through torque equalizer.
- Tines lift load toward operator, away from any wall.

SERVICE CASTER & TRUCK CORP.

EXECUTIVE OFFICES: ALBION, MICHIGAN • Plants at Albion, Michigan and Somerville 43, Mass.



INDUSTRIAL TRUCKING FLOORS

Resurfaced to withstand any traffic...

with CAMP'S No. 7
INDUSTRIAL FLOOR
RESURFACER

Tougher than Steel—Easy to Apply

**COSTS ONLY \$15.00
PER 100 SQUARE FEET**

Camp's No. 7 is applied like cement over your present wood or concrete floors. A $\frac{1}{4}$ inch thickness resurfaces worn or rough concrete floors to withstand any traffic. Sets in three or four hours—ready for heavy trucking in 24 to 48 hours. Camp's No. 7 comes ready to mix—nothing else needed. Your choice of brown, red and natural dark gray.

Order a trial unit—you must agree it is the best resurfer you have seen, or there will be no charge.

EVERY INSTALLATION UNCONDITIONALLY GUARANTEED
Further information describing this and other Camp's flooring material sent on request.



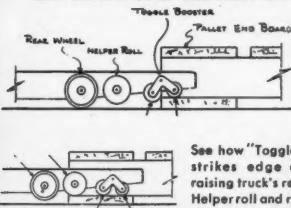
\$15.00
per unit
Consists of:
4—50 lb. Bags Powder
5 Gals. Floorcete Liquid
Coverage:
100 sq. ft. about $\frac{1}{4}$ " thick

The CAMP COMPANY, INC.

6956 S. State St., Chicago 21, Ill., TRIANGLE 4-4770-1-2



Magic "Toggle Booster"
Lets Wheels Glide into Pallet Smoothly



See how "Toggle Booster" strikes edge of pallet, raising truck's rear wheels. Helper roll and rear wheels are able to glide smoothly through pallet into position.

Here is the only pallet truck with tines which can enter your double faced pallets with no jockeying. Magic "Toggle Booster" rollers "float" truck frame and wheels over bottom face of pallet so gently that even an empty pallet isn't jarred out of position. Leverlift enables you to use all floor space where it's too crowded to work power-operated equipment. Here is the easiest and quickest hand-operated way to move palletized loads.

Write for Detailed Specifications Today

It's the ULTIMATE in SMOOTH ECONOMICAL CONVEYING SYSTEMS...

- Speedy Assembly
- Uniform Movement
- Versatile Application
- All Curves
- Live

For greater conveying efficiency and economy, write us
for information today on
The Island Line . . . A most complete line.
(All that can be desired in Conveying Equipment)

ISLAND EQUIPMENT CORP

Brewster Rolls Royce Building
27-01 Bridge Plaza, North • Long Island City 1, New York

The Ultimate Double-Flex Chain Conveyor
may be used as a complete system or an
adjunct to other systems in handling cases,
cartons, boxes, cans, etc. Conveys up, down,
around curves, inside or outside of buildings.

The Ultimate Stationary Medium Duty Horizontal & Incline Belt Conveyor is
another highly perfected means of conveying items from one point to another.

feet per minute with 2500 lb. load, and
tilts 18 degrees in ten seconds. Total



weight including 19-plate battery is
3640 lbs.

ELECTRIC TOW UNIT

5—A new type of electric tow unit has
been added to the Electric Pony Express line of Rocky Mountain Steel

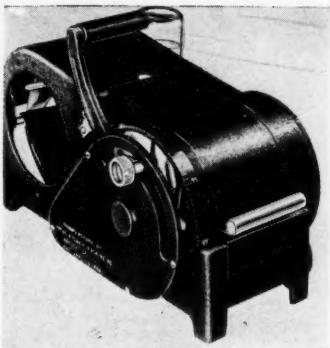


Products, Inc. It is designed with a dual set of controls so that the operator can walk on either side as well as ride. It is claimed that the truck is suited for towing jobs where maneuverability and light weight are important considerations, such as in lofts, elevators, etc. It weighs only 1895 lbs., is 77 inches long, and turns within a radius of 58 inches.

TAPE DISPENSER

6—The Clip-A-Tape, a gummed tape dispenser, has been developed by the Ideal Stencil Machine Co. Designed for batch taping, sealing bundles, parcel

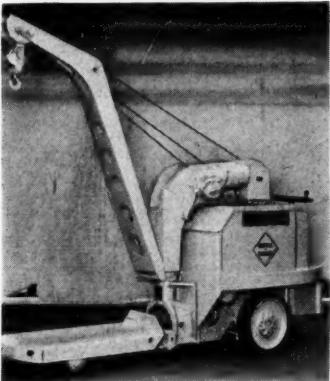
post packages, and general wrapping, it ejects up to three feet of one inch to three inch moistened gummed tape. Measurement gauge is quickly adjust-



able for the length of tape required. Any type of beverage bottle with lip for standard metal crown can be used to supply water.

CRANE AND LIFE-PLATFORM POWER TRUCK

7—A new power industrial truck combining a low-lift platform and a crane has been introduced by Elwell-Parker Electric Co. The crane can lift and transport loads weighing up to three to



five tons. Crane lifting capacities range from 1000 to 2000 lbs. It can pick up a load from floor level and lift it to a hook height of eight feet, within a radius of 45 degrees either left or right from base. Loads may be piled directly on truck's platform or on skids under which the platform can maneuver.

PALLET HANDLING TRUCK

8—A pallet handling truck, the Pallet Toter, has been added to the line of gasoline-powered material handling equipment produced by Truck-Man, Inc. Features of this new model include, incorporation of all controls, including the brake, in the single transmission lever; speeds in either direction from creeping upward to three miles



and a capacity of 3000 lbs. The weight of the truck is 920 lbs. per hour; rubber insert load wheels;

ELEVATOR BUCKET

9—An elevator bucket has been developed by Pekay Machine & Engineering



Co. It is equipped with an independent "Ejector Plate" which serves as the



have both-

In addition, International Harvester powered Shop Mulifts have the same engines as the famous Shop Mule, used in 73 industrial fields. Parts and service are quick and world-wide.

FREE LIFT of
55" with an
overall height
of only 83".



and



UNOBSTRUCTED VISION when travelling with load.



W. F. HEBARD & CO.

336 W. 37th STREET, CHICAGO 9, ILLINOIS

Multiply Your Manpower 13 Times

with the **WHITING** Electric Hoist

1-TON SIZE COSTS ONLY \$230.00

F.O.B. HARVEY, ILLINOIS

Tests show that the powerful new Whiting Electric Hoist lifts loads up to two tons, 13 times as fast as a hand hoist...releasing men and machines for productive work. Additional savings result from Whiting's simple, worm-gear design. There are fewer parts to wear...reducing maintenance expense to a minimum. Workers like these hoists, too, because they make it so easy to lift back-breaking loads. Whiting Hoists are available for polyphase or single-phase operation. It will pay you to investigate these new time- and money-saving hoists, today!



FOUR SIZES:
 $\frac{1}{4}$, $\frac{1}{2}$, 1, and 2-Ton

WHITING ELECTRIC HOISTS

Write for Bulletin H-100A

WHITING CORPORATION

15659 Lathrop Ave., Harvey, Illinois

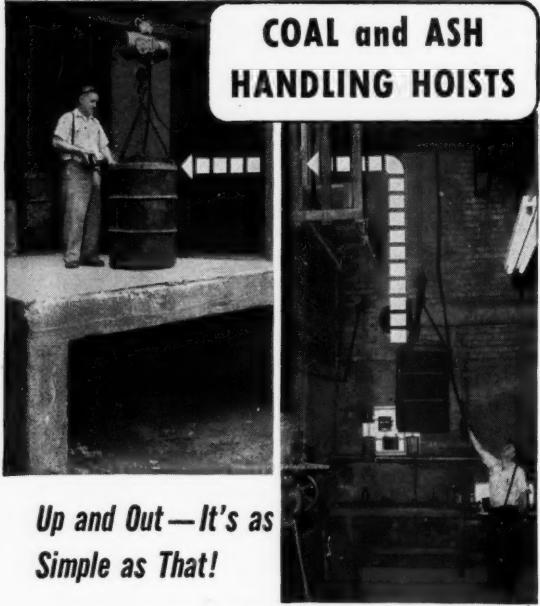
Send me a copy of your Bulletin H-100A.
 Send me the name of the Whiting distributor in my locality.

NAME _____

STREET ADDRESS _____

CITY _____ STATE _____

COAL and ASH HANDLING HOISTS



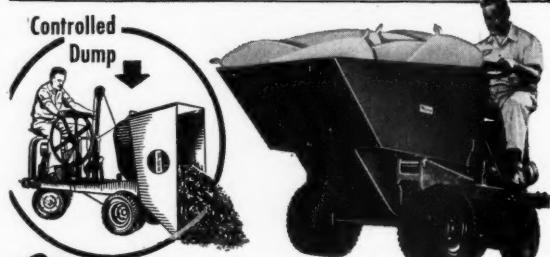
*Up and Out—It's as
Simple as That!*

Loaded ash bucket starting from boiler room floor, is hoisted to overhead platform. Hoist on monorail beam carries bucket from platform to dock. Push Button control provides operation at boiler room floor or dock.

Detroit Hoists save time, eliminate hard labor, keep heating plants clean. Write for Bulletin 805.

DETROIT HOIST & MACHINE CO.
 8216 MORROW STREET • DETROIT 11, MICHIGAN

Hustle 5 wheelbarrowsful per load... at 10 m.p.h.



Whiteman POWER BUGGY

will easily carry anything you can load in or on it. Does the work of 6 men. Controlled dump makes it easy to pour wet concrete, or part of a load. Turns on a dime. For maintenance or moving bulk materials, it quickly pays for itself.

Capacity: 2000 lbs. or
 12 cu. ft.
 •
 7 H.P., 4 cycle, air cooled
 •
 Turns in radius—reverses
 •
 Heavy Steel Bucket
 34" high
 •
 Fits through doorways

WRITE FOR PRICES AND ILLUSTRATED LITERATURE

Whiteman MANUFACTURING COMPANY
 3249 Casitas Avenue Los Angeles 26, California

EWC WHEELS

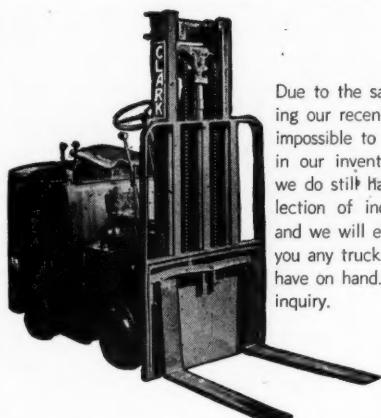
Engineered for YOUR Product

There is a wide variety of EWC wheels and axles for every type of mobile equipment . . . one or several may be ideally suited to your product. For unusual wheel problems, we offer you a complete engineering service, with a thoroughly experienced staff and unexcelled facilities. Write today for complete information.



ELECTRIC WHEEL CO., Quincy, Illinois, Est. 1890

Gas and Electric Lift Trucks



Due to the sales made during our recent auction, it is impossible to list the trucks in our inventory. However, we do still have a good selection of industrial trucks and we will endeavor to get you any truck that we don't have on hand. Send us your inquiry.

Our inventories contain a limited amount of construction equipment including: tournapulls, cranes, and bull dozers. Contact us today for this equipment.

HARRY M. RIGHTER, Inc.

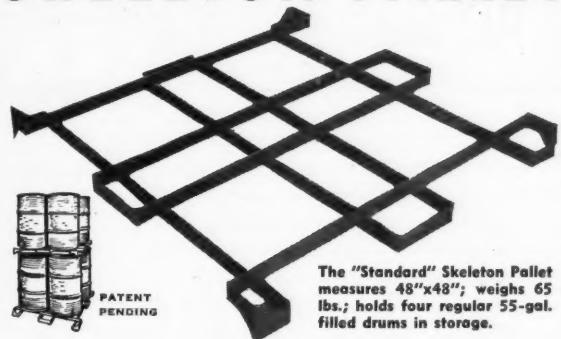
CLEVELAND 2, OHIO—Phone ATLantic 1631, 7:30 to 4

Foot of W. 45th St.—Former American Shipbuilding Yard—First turn toward lake west of High Level Bridge off Bulkley Blvd. 5 minutes from Square.

OWNED, OPERATED AND MANNED BY VETERANS OF WORLD WAR II

Now! an all-steel pallet designed for use with Lift Trucks...

SKELETON PALLET



PATENT
PENDING

The "Standard" Skeleton Pallet measures 48"x48"; weighs 65 lbs.; holds four regular 55-gal. filled drums in storage.

The welded steel construction and semi-open framework of the Skeleton Pallet make it ideal for use in palletizing and depalletizing with fork lift truck, or by hand.

The "Standard" Skeleton Pallet (above) is designed especially to accommodate oil drums, barrels and rectangular types of firm containers.

It combines light weight, durability, low first cost and low upkeep; measures 48"x48" overall; weighs 65 lbs. Skeleton Pallets are available in several sizes or can be built to your specifications, if desired. Write for literature.



PACIFIC CHAIN & MANUFACTURING COMPANY

4200 N. W. Yeon Avenue • Portland 10, Oregon

Set up work table
assembly lines
in your plant
Quickly and Easily



WITH HIGHLY ADAPTABLE

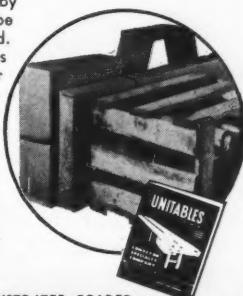
UNITABLE PORTABLE BELT CONVEYORS

Motor driven units (powered by POWER PAC) which can be adapted to any lengths desired. Fixed or variable belt speeds from 6 inches to 80 feet per minute. Move to any location quickly and easily. Side counters on one or both sides for necessary working space. Ruggedly built — Economical in use.

SHIPPED TO YOU FOR QUICK AND EASY ASSEMBLY

Your service men can assemble a UNITABLE in a very short time.

SEND TODAY FOR ILLUSTRATED FOLDER



CONVEYOR SPECIALTY CO., INC.

NORTH QUINCY 71

MASS.

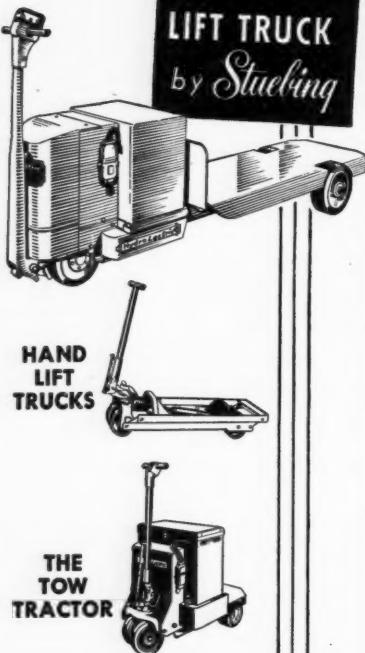
Send today for complete catalog on Gravity Roller, Belt and Chain Conveyors.

**Are you making a
down payment on
REPAIRS**

If downtime is making the purchase price of your truck a mere down-payment on repair bills . . . let Lift Trucks pick up your load. Plants country-wide report that these trucks are establishing amazing records hauling bigger loads, running longer hours . . . and serving up to 24 hours daily, month after month, with almost complete elimination of downtime. Stuebing quality construction keeps Lift Trucks on the job . . . longer . . . for less! The purchase of lowest-cost Lift Trucks is a sound investment in economical materials handling.

Write for Bulletin L

**HydroElectric
"K" MODEL
LIFT TRUCK
by Stuebing**



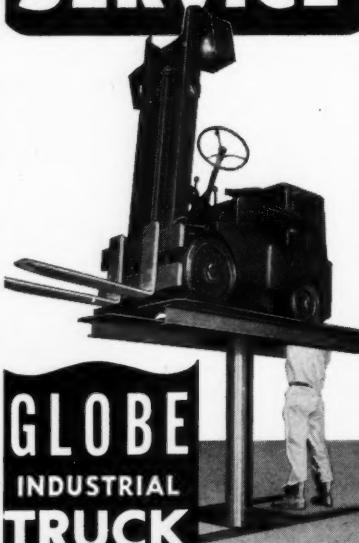
Engineered
and Patented
by W. Stuebing



**LIFT TRUCKS
INCORPORATED**

2425 Spring Grove Ave., Cincinnati 14, Ohio

**SAVE on
Industrial Truck
SERVICE**



**GLOBE
INDUSTRIAL
TRUCK
LIFT**

**CUTS
MAINTENANCE
COSTS**

This Globe Lift raises your industrial trucks UP where workmen can inspect, lubricate, or repair them in minimum time. No stooping or crawling to reach under-slung parts. Everything at their fingertips, everything better done, in less time. Installs anywhere. Recesses level with floor.

WRITE

Illustrated specifications and full literature on request. Write today for Bulletin F4.

GLOBE
LIFTS and ELEVATORS
GLOBE HOIST COMPANY
Philadelphia 18, Pa. Des Moines 6, Ia.

back of the bucket, but which is attached to the elevator belt by an entirely separate mounting than that used for the bucket itself. The passage of this mounting over the radius of the head pulley, moves the plate in a strong sweeping action which dislodges its contents. It is further stated that these buckets can be substituted for those now in use without any major change to the elevator itself.

HAND TRUCK

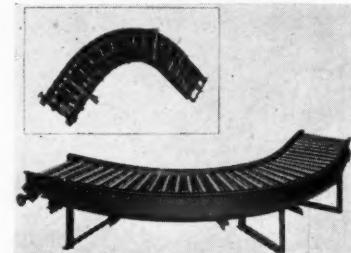
10—An all-purpose hand truck is being manufactured by the Thompson Manufacturing Co., Inc. In the open position it is designed to move carboys, acetylene tanks, barrels, packages, and other items



in a vertical position to avoid spilling the contents. In the closed position it may be used for carrying items in the conventional manner. Weight is 35% lbs. Truck can be easily converted from one position to the other, it is stated.

LIVE ROLLER CURVE SECTION

11—A V-belt driven live roller curve section which may be used in conjunction with present conveyor installations, is being produced by The Alvey-Ferguson Co. The curves may



be driven either from an adjacent conveyor or an independent motor through chain or sprocket to a heavy-duty V-belt, which provides friction drive to the lower side of the load rollers. The V-belt rides in precision sheaves mounted to guide the V-belt around the arc of the curve. The drive is said to be practically positive owing to the pressure arrangement against the load rollers by these ball bearing sheaves, and it is stated that no damage results should the conveyor continue to run.

Rubber Tired Truck Wheels

Easy rolling tires with resilient treads that prevent floor damage. Molded-on type with guaranteed adhesion of rubber to core. Strong one-piece wheel casting. Hyatt bearings, grease gun fittings, grease retaining dirt-proof thrust washers. Only a few of many sizes listed. We serve resale dealers and original equipment manufacturers.



SPECIFICATIONS

Wheel No.	Tire Size	Hub Length	Axle Dia.	Load Capacity
RC 4	4x1½	1¾	1/2	140 lbs.
RE 5	5x2	2⅓	5/8	250 lbs.
RC 6	6x1½	2⅓	3/4	200 lbs.
RE 6	6x2	2⅓	3/4	310 lbs.
RF 6	6x2½	2⅓	3/4	360 lbs.
RE 7	7x2	2⅓	3/4	350 lbs.
RE 8	8x2	2⅓	3/4	390 lbs.
RG 8	8x2½	2⅓	1	530 lbs.
RE 9	9x2	2⅓	3/4	420 lbs.
RG 9	9x2½	2⅓	1	570 lbs.
RG 10	10x2½	2⅓	1	600 lbs.
RJ 10	10x3	3⅓	1	750 lbs.
RG 11	11x2½	2⅓	1	630 lbs.
RJ 12	12x3	3⅓	1	830 lbs.
RL 12	12x3½	4⅓	1 1/4	1020 lbs.
RN 12	12x4	4⅓	1 1/4	1240 lbs.
RJ 14	14x3	3⅓	1	890 lbs.
RJ 16	16x3	3⅓	1	950 lbs.
RG 18	18x2½	3⅓	1	800 lbs.
RJ 18	18x3	3⅓	1	1000 lbs.
RL 18	18x3½	4⅓	1 1/4	1240 lbs.
RJ 20	20x3	3⅓	1 1/4	1050 lbs.

Buffalo CASTER & WHEEL CORP.

182-6 Breckinridge St., Buffalo, N.Y.

PUT THIS
"Weld-Bilt"
ELECTRIC PORTABLE ELEVATOR
To Work for YOUR Profit

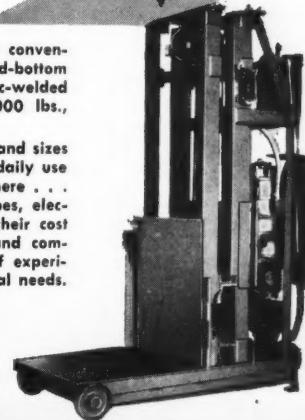
- Saves Valuable Floor Space
- Increases Production Space
- Improves Storage Facilities

Here's a husky "prime mover" for efficient vertical materials handling and storage in your shop or warehouse. It's the dependable WELD-BILT Electric Single Telescopic Portable Elevator, with motive power controlled by convenient push-button and automatic top-and-bottom electric limit switches. Wide, steel arc-welded frame. Capacities from 500 lbs. to 4000 lbs., and lifting heights from 4 ft. up.

This is only one of many different types and sizes of WELD-BILT Elevators installed and in daily use in hundreds of industrial plants everywhere . . . single or double telescopic or hinged types, electrically or hand operated. They'll save your cost in your plant, too. Write for catalog and complete details—or for recommendations of experienced WELD-BILT engineers on your special needs.



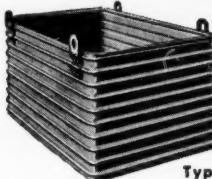
WELD-BILT Products include: Hydraulic Lift Trucks • Pallet Trucks • Platform Trucks • Two-Wheel Trucks • Skid Platforms • Tiering Machines



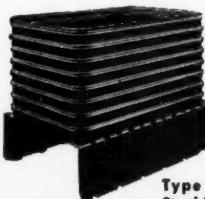
WEST BEND EQUIPMENT CORPORATION

241-9 Water Street, West Bend, Wisconsin
MATERIALS HANDLING ENGINEERS

HEADQUARTERS FOR MATERIALS HANDLING EQUIPMENT



Type B-80C Truscon Box Equipped for Crane Handling.



Type PB-120 Truscon Steel Box and Platform.

THE SUCCESS of modern production methods depends upon the efficiency with which materials and products in various stages of fabrication can be handled.

Truscon's Pressed Steel Division—nationally known for the quality of its products and the dependability of its service—is fully equipped and prepared to handle your material handling equipment requirements. The Pressed Steel Division's central location, moreover, assures efficient service for all your needs.



Type PB-120L Truscon Box and Platform with full length lifting lugs.

Write for free catalog describing the complete line of Truscon Steel Boxes and Steel Skids.

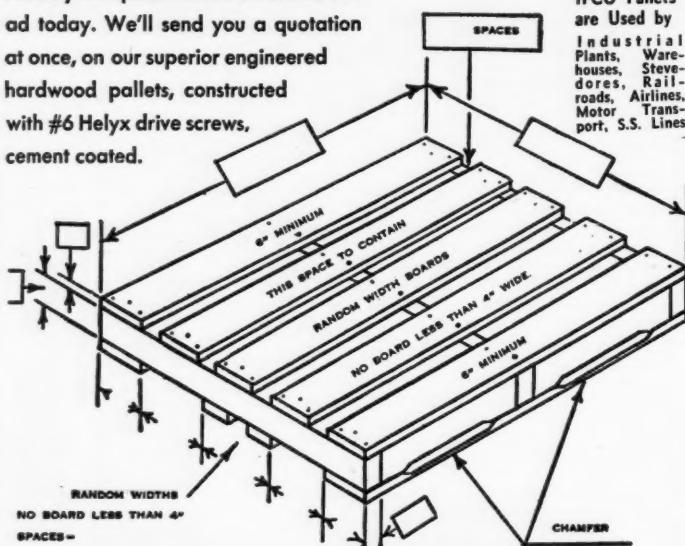


TRUSCON
MATERIALS HANDLING EQUIPMENT

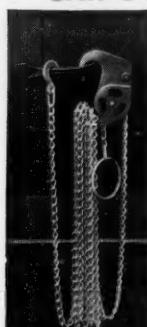
TRUSCON STEEL COMPANY • Pressed Steel Div., 6202 Truscon Ave., Cleveland 4, O., Subsidiary of Republic Steel Corp.

LET US QUOTE ON YOUR PALLET NEEDS

Fill in your specifications and mail this ad today. We'll send you a quotation at once, on our superior engineered hardwood pallets, constructed with #6 Helyx drive screws, cement coated.



NOLAN ONE MAN CAR DOOR OPENER

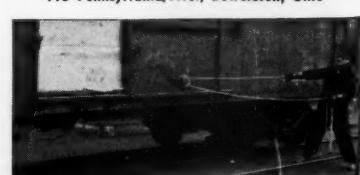


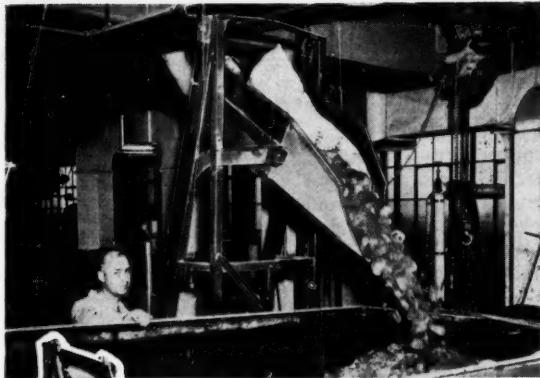
One man can open the most binding, balky box car door with the Nolan Car Door Opener. Get greater safety . . . speed loading and unloading schedules . . . order an ample supply to fill your needs today!

• No strained muscles. No slips or falls. No broken arms, legs or mashed fingers. No fatalities. No time wasted. No "gangs" needed. No time loss.

Write for free descriptive literature.

The Nolan Company
110 Pennsylvania, Ave., Bowerston, Ohio





SAVES $\frac{1}{3}$ MAN HOURS

IT's estimated by S. C. Johnson & Son Inc. that the Cesco Dumper saves $\frac{1}{3}$ of their man hours in addition to eliminating back-breaking labor and personal liability.

The Cesco Dumper lifts and dumps any free flowing material up to 500 lbs. at the touch of a control button. Built for various heights with skips for any use—barrel, truck, open, dust-proof, bag.



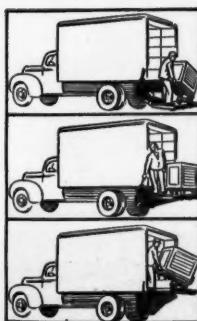
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COLSON EQUIPMENT & SUPPLY CO.

1321 WILLOW STREET LOS ANGELES 13, CALIFORNIA



Give your customers Floor-to-Floor DELIVERY SERVICE

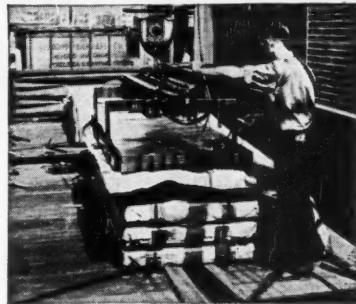


- Your trucks or trailers can be loaded and unloaded much quicker with Anthony "LIFT GATES". The new proved, advance design cargo handling equipment. This means faster pickup, faster delivery—no unnecessary delays.
- Your drivers can handle heavy shipments much easier. Merchandise is handled gently and safely—minimizes damage claims.
- No tying up area ways. Loading doors open a shorter time. Reduces confusion at dock doors.
- Shippers and receivers alike, like this extra service because it costs them less to use your service.

ANTHONY CO.
Dept. 8120
Streator, Ill.

ANTHONY
LIFT GATE
HYDRAULIC

SHEET HANDLING



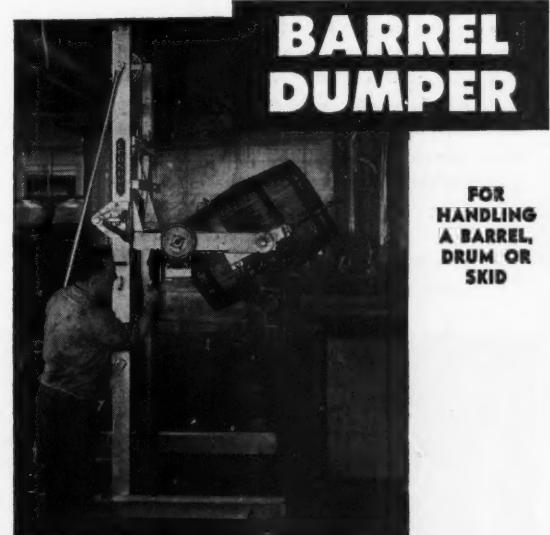
SAVINGS UP TO 96%

FROM UNLOADING CARS AND STORING STEEL WITH MANSAVER GRABS ARE BEING MADE BY MFRS. OF REFRIGERATORS, STOVES, KITCHEN CABINETS, Etc.

Prompt
Deliveries

COMPLETE YOUR CRANES WITH
MANSAVER GRABS

Mansaver Industries, Inc., 3103 East Street, New Haven, Conn.



BARREL DUMPER

FOR
HANDLING
A BARREL,
DRUM OR
SKID

An efficient method of lifting and dumping barrels is provided by the Economy barrel dumper. A special cradle and tilting winch holds the barrel at any angle for draining.

Cradle and winch can be detached for skid handling, using the platform arms alone. The Economy line of portable lifters range from 500 lbs. to 5000 lbs. capacity and up to 60 ft. lift. Special equipment engineered. Complete catalog on request.

ECONOMY ENGINEERING CO.

2677 W. Van Buren St., Chicago 12, Ill.

Keeping production moving... for leading industries!



More and more, industries of every type are discovering the advantages gained by the use of cable type overhead trolley conveyors. In leading plants, the installation of BUSCHMAN Universal Cable Conveyors have proved to be the low-cost, durable and efficient method of handling light to medium weight loads. In addition to these advantages over conventional, chain conveyors, BUSCHMAN Universal Cable Conveyor is easily installed or altered to meet changing conditions. Write for Bulletin 40.

STANDARD STOCK UNITS

Smooth Running, Trouble Free Installation

3" T. JR. Track; Double Duty Trolleys on Steel Cable; Timken Bearing Idler Sheaves; Variable Speed Drive; Vertical "S" Curve; Take Up Units



TROLLEYS (Patents Pending). Have split driving fun castings bolted to all steel cable, with channel brackets and double duty ball bearing wheels. TROLLEYS rated up to 160-lb. capacity spaced on 12" centers. Track 3" T. JR. with hanger lugs for bolted supports, dowel pinned joint. HOOKS "Quick Removal," side guided, pendant. Full description available.



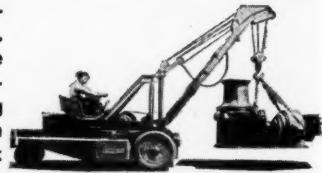
A Typical Buschman
Cable Installation

Buschman

THE E. W. BUSCHMAN COMPANY
WINTON PLACE, CINCINNATI 32, OHIO

MATERIALS-HANDLING EQUIPMENT CUTS OPERATING COSTS—SPEEDS OUTPUT

KRANE KAR performance is unmatched. Works anywhere—in the plant or yard—tight quarters, low headroom, long hauls, up and down grades. Makes short work of Loading and Unloading freight cars, trucks, trailers . . . Transporting, Stacking, Storing . . . Plant Maintenance and Repairs. Ideal for handling steel stock (or scrap when equipped with magnet) and heavy objects like hammer heads, transmission cases, crank cases, motors, etc. Users report labor-savings up to 75% . . . materials handling costs cut to 8c a ton . . . and elimination of hazard of serious injuries commonly experienced in hand methods.* Ask for illustrated Bulletin No. 79.



KRANE KAR handles loads at Sides as well as at Front.

Gasoline or Diesel. Equipped with pneumatic or solid rubber tires; 9 to 37 ft. booms or adjustable telescopic booms; electric magnet, clamshell bucket, and other accessories available.

Users: Pullman Standard; General Motors; Bethlehem Steel; Todd Shipyards; Boeing Airplane Co.; General Electric; duPont; U. S. Rubber, etc.

* Case studies on request



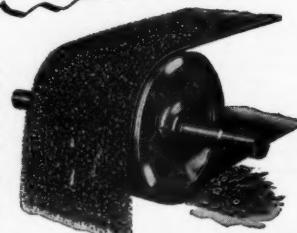
SILENT HOIST & CRANE CO., 888 63rd ST., BKLYN 20, N.Y.



For protection against tramp iron during processing, Homer offers the best in non-electric, plate-type permanent magnetic separators. Standard widths from 4" to 26". Special sizes upon request. Cast frame requires no insulation . . . cover protects powerful Alnico assembly from dust and moisture.



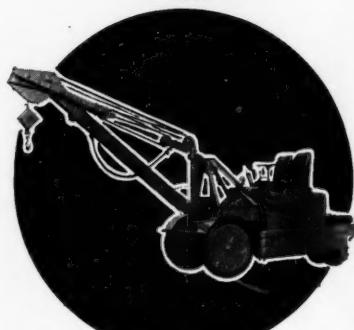
Homer permanent, non-electric magnetic pulleys . . . "tops" for separating tramp iron from belt conveyed materials, available in 12" to 24" diameters, with widths to 60". Larger sizes upon request. Homers handle burden depths from 2 1/2" to 5" depending on size and kind of material.



SUBMIT YOUR MAGNETIC SEPARATOR PROBLEMS TO HOMER

The HOMER Manufacturing Co., Inc.
LIMA - OHIO
PERMANENT MAGNETIC SEPARATORS — PLATE TYPES AND PULLEYS

See... PORTABLE FOR A LIFT



- Let PORTABLE help you keep goods moving with job-tested and guaranteed machines at the lowest cost.
- PORTABLE SERVICE stocks and services a complete line of the finest equipment, made by America's leading manufacturers, both new and rebuilt. All rebuilt equipment carries a 90 day warranty.
- PORTABLE gives you the opportunity to first RENT in order to TRY, then DEDUCT rentals when you buy!

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PORTABLE SERVICE

EQUIPMENT CO., Inc.

3519-31 N. FRONT ST., PHILA. 40, PA.

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OCTOBER ISSUE BRIEFS

Efficient yard operations for cinder crushing . . . three benefits brought about with a modern handling system in a chain manufacturing plant . . . newest packaging methods in the frozen chicken industry . . . one man operation in a veneer warehouse . . . work carrier efficiency with the use of specially designed hocks . . . a mechanized jobbing foundry . . . how mechanization brought increased production, decreased costs in a lumber yard . . . LAST MINUTE NEWS ON THE THIRD ANNUAL INDUSTRIAL PACKAGING AND MATERIAL EXPOSITION. Watch for these articles in the October and subsequent issues of FLOW.

Save With Round Corner Pallets!

Razorback Pallets with round corners reduce danger of damage to palletized merchandise — and the life of the pallet is lengthened, too! The cost is small. Ask us about it.

ARKANSAS PALLET CORP.

Plant and Sales Office in
PINE BLUFF, ARKANSAS
P.O. Box 794-A Phone 6474



TRADE
MARK

Everything You Need in MATERIALS HANDLING EQUIPMENT

DOUBLE END TRUCK

General purpose push truck, with hardwood platform 52" long by 27" wide. Completely metal bound. Push handles 36" from floor.



Item X-114-M
(Metal Wheels) **\$5140**
Item X-114-R
(Rubber-Tired Wheels) **\$5380**

UTILITIES RACK ON WHEELS

For handling small parts during production or assembly operations.

Item NS-415-M
\$6160

(Roller bearing, 6" x 2", all metal wheels)

Item NS-415-R

(Ball bearing, 8" x 1 1/4", rubber wheels)

\$6380



BARREL AND BOX SKID

Light weight, welded, all-steel construction, sturdily built, easy to handle, 14" wide.

All-Steel



Item B-886

VENTILATED BOX
Designed for rapid, uniform cooling of hot metal parts, castings, forgings, etc. Can be used with hand or power lift truck—available with stacking lugs if desired. Provides immediate identification of parts.

When Ordering

Always give "Item" number; this will help prevent error. All prices are f.o.b. Detroit. Prices subject to change without notice.



BOOK TRUCK

For curing rubber, plastics, etc., in process. Shelves of sheet steel, expanded metal or plywood, etc. When raised, shelves automatically stay in position. Built to fit requirements.

BARREL TRUCK

It Loads Automatically

Handles barrels up to 1000 lbs. To load, shove truck up against barrel or drum, drop the sliding steel catch down over the rim—pull truck handles toward you and it will load automatically. Durable, all-steel, welded construction

—built for rough usage. Greatest width at any point is only 22", permitting easy passage through narrow doors and aisles.



Item S-911-M
Equipped with 10" roller bearing, mounted metal wheels. **\$3350**

Item S-911-P
Equipped with 12x4.00-6 4-ply pneumatic tires and tubes. **\$4500**

Item S-911-R
Equipped with 10" roller bearing, mounted, molded on rubber wheels. **\$3850**

All-Steel

8 ft. **\$2200**
10 ft. **\$2750**
12 ft. **\$3300**

Item B-470

May be used as a push truck or with lift truck. Built of all hardwood, completely metal bound, all welded construction, no bolts used. Four sturdy, 5" swivel casters.

TWO STANDARD SIZES

Item NS-418A \$3965

Measures 24" wide, 36" long, 26" high overall. Weight 185 lbs.

Item NS-418B \$4505

Measures 28" wide, 48" long, 30" high overall. Weight 260 lbs.

PUSH TRUCK

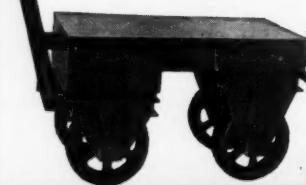


Metal Bound

Heavy Duty DIE TRUCK

Item B-768

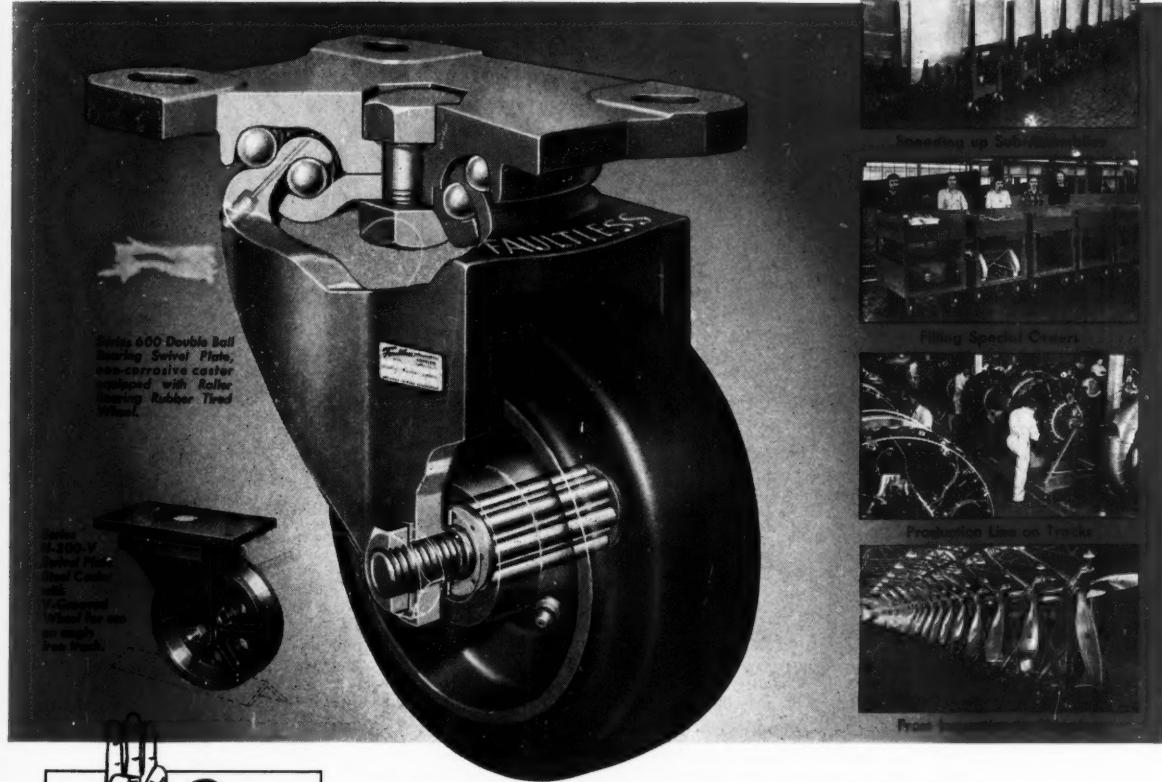
Just the thing for heavy dies, jigs, fixtures, stampings or heavy, cumbersome loads are being continually moved from one machine to another. Built in special sizes to meet specific requirements.



**Just out
NEW CATALOG
Send for it today**

Palmer Shile Co.

Flexibility
WITH FAST, FLUID PRODUCTION LINES CUTTING HANDLING COSTS



 **Save
costs 3 ways!**

1. PRODUCTION:

Higher production costs demand new *short cuts* ... from receiving to shipping platforms. Faultless Casters speed up the *flow* of materials.

2. MAN-HOURS:

Cutting handling time, *accounting for over 20% of industry's man-hours*, provides your greatest opportunity for gains in worker productivity—unit output.

3. FLOORS: No need for costly floor alterations or floor covering—Faultless wheels are available for all types of floor surfaces and loads.

With world recovery dependent on increased production, no one can tolerate slow-downs due to equipment failures. Hence, the added efficiency and durability of Faultless Casters *engineered* to endure loads and shocks of severe service, gain extra importance. In addition to saving man-hours in the handling of mobile equipment, due to easier performance of Faultless Casters, there's a clear profit from the extra mileage they give.

There is a smooth rolling, easy swiveling Faultless Caster specifically engineered for *your* load, speed and floor requirements. Simply select it from Bulletin 1045, or let our nearest sales engineer come in for consultation, no obligation.

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FLOW'S "C. B. P." Plan identifies its more than 27,000 readers as authenticated, active BUYERS. The identity of each reader as a "CERTIFIED" buyer is validated by 46 selected material handling equipment distributors located in key marketing areas. These distributors subscribe to FLOW for their active customers and bes. prospects. The distributors pay \$1.20 a year for each subscription. FLOW's more than 27,000 distributor-authenticated reader-buyers become more than just circulation . . . they represent the known potential national market for material handling equipment. This makes FLOW the REAL sales link between the material handling equipment manufacturer and his prospects.

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